Atlantic Ocean Basin

The Atlantic Ocean Basin is comprised of a single HUC (02080110) encompassing the eastern half of Virginia's Eastern Shore whose coastal lagoons and barrier islands are largely unaltered by human impact and are considered the best remaining Atlantic coast wilderness. The basin is located within the Conservancy's Chesapeake Bay Lowlands Ecoregion and has significant acreage protected through state and federal efforts. Conservation targets include nearshore Atlantic marine fauna, coastal estuarine and lagoon systems, the barrier island systems, migratory shorebirds, waterfowl, land birds and raptors, and breeding barrier island and lagoon birds.

The projects discussed in this section serve as mitigation for permitted impacts within the Atlantic Ocean Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue two mitigation projects in this basin. The Corps has authorized funds for both projects, each providing mitigation for permitted impacts to tidal wetlands. While these projects may not be considered typical mitigation for wetland impacts, their role in the improvement to water quality and benefit to fish and wildlife has proven appropriate for funding through the program.

There have been no proposed non-tidal wetland projects in this basin, although 0.54 acres of impacts have accrued in the basin with a mitigation liability of 1.05 credits. To date, the Fund has not been used to mitigate for stream impacts in this basin.

The following table provides a summary of projects for which funds were approved in this basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table 1: Approved Project Summary for the Atlantic Ocean Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized		
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)
AO-1	Virginia Coast Reserve (SAV Beds)	M	6/10/05	0.00	50,000.00	0.00
AO-2	Virginia Coast Reserve (Oyster Beds)	M	6/10/05	0.00	156,350.00	0.00
			Totals	**0.00**	**206,350.00**	**0.00**
			Grand Total	**206,350.00**		

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following table summarizes the status, proposed mitigation activity type and associated acreage, and proposed credit for each tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the Atlantic Ocean Basin. In addition the table provides the amount of impact acres in the basin, the total mitigation liability in credits, and a measure of the wetland area that is proposed to be replaced through restoration or creation activities in comparison to the

amount impacted.

Table 2: Tidal Wetland Project Summary for the Atlantic Ocean Basin.

Project Information		Salt Marsh Rest	SAV Rest	Oyster Rest	Tidal Enh	Tidal Pres	Mitigation Acres	Proposed Credits
Project #	Status							
AO-1	M	0.00	10.00	0.00	0.00	0.00	10.00	2.00
AO-2	M	0.00	0.00	3.18	0.00	0.00	3.18	0.64
Acre Sub-totals		**0.00**	**10.00**	**3.18**	**0.00**	**0.00**	**13.18**	**2.64**
Credit Sub-totals		**0.00**	**2.00**	**0.64**	**0.00**	**0.00**		

Total Acres of Tidal Impacts	**1.01**
Total Mitigation Liability	**1.01**
Total Proposed Credits	**2.64**
***Percent of Wetland Acreage Replacement**	**262.0**

LP - Pending finalization of land protection	I - Restoration/Enhancement/Creation activities in progress
P - Planning / permitting	M - Mitigation monitoring
D - Pending delineation / assessment	CA - Corrective actions necessary
	PC - Pending project closure

*It should be noted that the restoration in this basin is "out of kind" and is credited at a 5:1 ratio.

Project Summaries

The following section provides a detailed summary of each project located within the Atlantic Ocean Basin for which the Corps has authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

AO-1 Virginia Coast Reserve (SAV Beds)

The purpose of this project is to restore ten acres of submerged seagrass beds, primarily eelgrass (*Zostera marina*), within the seaside coastal bays of the Eastern Shore. The funding for this project was approved by the Corps on June 10, 2005. This project was sponsored and implemented by the Virginia Institute of Marine Science (VIMS). VIMS proposed to harvest and broadcast a minimum of 200,000 seeds into five one-acre plots in the fall of 2006 and an additional five acres in 2007. The eelgrass plots are concentrated in the Gull Marsh area, specifically Spider Crab Bay. Monitoring is scheduled to take place for a total of five years, ending in 2011. Annual reports are submitted to the Corps by the end of January each year.

Harvesting of eelgrass reproductive shoots with viable seeds occurred in spring 2006 and 2007 during the peak period of seed release. Shoots were harvested using either self contained underwater breathing apparatus (SCUBA) or snorkeling, where shoots were collected by hand and placed in nylon mesh bags. These shoots were returned to the VIMS laboratory and placed in large seawater holding tanks at the seagrass greenhouse. The shoots were then monitored for seed release.

In mid-summer, viable seeds were separated from all detritus and plant material using a variety of sieving methodologies. Seeds were then placed inside the greenhouse and held at 20^{o}C in a re-circulating seawater system until fall 2006 and 2007.

Seed broadcasting and planting was conducted in the fall of 2006 and 2007, just prior to seed germination which begins in late November. This involved broadcasting seeds into ten pre-determined one-half acre plots in Spider Crab Bay. Seeds were broadcast at two seed densities (50,000 and 100,000 seeds per acre) into eight of the ten 0.5 acre plots. Hand broadcasting has been the traditional method VIMS has used in the past. These densities were based on densities used in previous re-seeding efforts in the coastal bays. For the two additional 0.5 acre plots, seeds were broadcast using an experimental planter that was developed at VIMS. The planter is pulled behind a boat and seeds are gravity fed through tubes to individual injectors that deposit seeds just beneath the sediment surface. These two plots received seeds at densities of 50,000 and 100,000 seeds per acre.

Monitoring of the establishment and an assessment of seedlings in these plots will be conducted in annually until 2011. Due to the unique nature of the activities in this project a 5:1 ratio is applied to the crediting of project.

AO-2 Virginia Coast Reserve (Oyster Beds)

The purpose of this project is to restore four acres of functional oyster reefs in the coastal bays of the Eastern Shore. The funding for this project was approved by the Corps on June 10, 2005. The Conservancy partnered with the Virginia Marine Resources Commission (VMRC) to sponsor this project. The partnership proposed to construct four acres of oyster reef in the intertidal zone of Cobb Island, known as Cobbs Cove. The reefs are posted and will be maintained as oyster sanctuaries by the Conservancy. Monitoring is scheduled for a total of five years, ending in 2009. Annual reports are submitted to the Corps during the spring of the subsequent year.

Reef construction at Cobbs Cove (identified as Reef 1) was completed in August 2005. Approximately 59,600 bushels of fossil shells were harvested and transported to the project location. The first year monitoring event (completed in 2005) indicated the reef to be approximately 1.62 acres. Surveys at three sampling sites on the reef provided an average yield indicating good to excellent spat fall of the newly planted shells. Security problems developed in the fall of 2005 at other reefs in Cobbs Cove. The Conservancy and VMRC requested approval from the Corps for a new reef (identified at Reef 2) to be constructed in a safer, inshore location. The selected site is a mainland farm owned by the Conservancy located near the town of Oyster. Reef 2 was completed July 24, 2006, with approximately 60,400 bushels of fossil shells.

The third year monitoring event (completed in 2007) included monitoring activities at both reefs. Both reefs were monitoring for oyster density (per square meter), spat fall and oyster growth, biomass, and total reef acreage. The monitoring results indicate good oyster growth, excellent spat fall, and significant natural recruitment at the sites. The increasing size variation in the oysters is beginning to create the vertical relief characteristic of a healthy, “functional” reef. The total acreage of reefs restored as part of the project to date is approximately 3.01 acres. Due to the unique nature of the activities in this project a 5:1 ratio is applied to the crediting of project.

Big Sandy Basin.

The Big Sandy Basin is comprised of two HUCs (0507202 and 0507201) that flow northwest out of the Appalachian Mountains of Southwestern Virginia into Kentucky and West Virginia. This basin is within the Conservancy's Cumberland and Southern Ridge and Valley and Central Appalachian Ecoregions.

The Fund has been used to mitigate 0.11 acres of non-tidal wetland impacts and 3,006 linear feet of stream impacts in the Big Sandy Basin. Through 2007, the Conservancy has not requested funds to pursue any mitigation projects in this basin.

Chesapeake Bay Basin

The Chesapeake Bay Basin is comprised of three HUCs (02080101, 02080102, and 02080109) that surround one of the largest and most productive bay ecosystems on the east coast of the United States. The basin is located within the Conservancy's Chesapeake Bay Lowlands Ecoregion and is the focal area of several conservation groups, including the Chesapeake Bay Foundation and the Alliance for the Chesapeake Bay, as well as, efforts of federal, state, and local governments. Conservation targets include migratory waterfowl, high-energy beaches, and bayside estuarine systems.

The projects discussed in this section serve as mitigation for permitted impacts within the Chesapeake Bay Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue fifteen mitigation projects in this basin. The Corps has authorized funds for all fifteen projects. Three projects (CB-7, CB-8/YK-4 and CB-15) provide mitigation solely for permitted impacts to non-tidal wetlands, and one project (CB-5/CH-12) provides mitigation solely for permitted impacts to tidal wetlands. Five projects (CB-1, CB-2, CB-12, CB-13, and CB-14) provide mitigation for permitted impacts to both non-tidal and tidal wetlands. Four projects (CB-3, CB-4, CB-6, and CB-11) provide mitigation for permitted impacts to both non-tidal wetlands and stream impacts.

Two projects (CB-9 and CB-10) involve the authorization of funds to conduct a feasibility study of the respective property to pursue a potential non-tidal wetland project. Based on the results of the study, project CB-9 was not pursued. The Conservancy is continuing to pursue a non-tidal wetland mitigation project for CB-10.

Due to the location of the sites, two of the projects (CB-5/CH-12 and CB-8/YK-4) mitigate for impacts within both the Chesapeake Bay Basin and either the Chowan River Basin or York River Basin. The total funds authorized by the Corps and crediting value for each project have been appropriately divided between the two respective basins.

The following table provides a summary of projects for which funds were approved in the Chesapeake Bay Basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table 3: Approved Project Summary for the Chesapeake Bay Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized		
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)
CB-1	Dameron Marsh (Smith 1)	M	10/9/97	105,751.59	10,000.00	0.00
CB-2	New Point Comfort (Trimmer)	M	1/11/00	100.00	1,736.00	0.00
CB-3	Dragon Run (Calhoun 1; Piedmont Farms)	M	2/6/04	150,000.00	0.00	50,000.00
CB-4	Dragon Run (Byrd)	M	8/5/04	43,800.00	0.00	43,800.00
CB-5 / CH-12	Eastern Virginia Phragmites Control	M	8/30/02	0.00	20,000.00	0.00
			9/9/03	0.00	20,000.00	0.00
			8/31/04	0.00	12,666.25	0.00
CB-6	Dragon Run (Calhoun 2; Piedmont Farms)	M	2/1/05	66,588.00	0.00	28,538.00
CB-7	Dragon Run (Calhoun 3; Piedmont Farms)	M	4/25/05	12,000.00	0.00	0.00
CB-8 / YK-4	Upper Crab Neck (BP North America)	M	4/21/05	42,500.00	0.00	0.00
CB-9*	Guinea Neck Site	F	6/1/06	6,800.00	0.00	0.00
CB-10	East River (Brooks/Ober)	AC, F	10/5/06	28,496.00	0.00	0.00
CB-11	Dragon Run Site	M	12/7/06	66,300.00	0.00	11,700.00
CB-12	Guillford Shores Site	M	12/7/06	3,732.00	9,000.00	0.00
CB-13	Dameron Marsh/Hughlett Point/Fleet Bay site	F	7/27/07	2,750.00	2,750.00	0.00
CB-14	York Complex (Harris Creek site)	A	8/10/07	2,500.00	2,500.00	0.00
CB-15	Dragon Run site	M	8/10/07	122,472.00	0.00	0.00
			Totals	**852,291.59**	**78,652.25**	**134,038.00**
			Grand Total	1,064,981.84		

* Project is no longer pursued due to landowner constraints or the results of feasibility studies.

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following tables summarize the status, proposed mitigation activity type and associated acreage, and proposed credit for each non-tidal and tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the Chesapeake Bay Basin. In addition, the tables provide the amount of impact acres in the basin, the total mitigation liability in credits, and a measure of the wetland area that is proposed to be replaced through restoration or creation activities in comparison to the amount impacted. The tables do not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 4: Non-Tidal Wetland Project Summary for the Chesapeake Bay Basin.

Project Information		NT Wetland (Ac)			Upland (Ac)		Mitigation	Proposed	Additional Protected
Project ID	Status	Rest/Cr	Pres	Enh	Rest	Pres	Acres	Credits	Acreage
*CB-1	M,D	15.88	13.72		21.33	0.21	51.14	18.68	
*CB-2	D		7.20			1.26	8.46	0.78	
*CB-3	PC		59.53				59.53	5.95	47.45
*CB-4	PC		2.64				2.64	0.26	33.81
*CB-6	PC		37.14			16.18	53.32	4.52	
CB-7	PC		3.49			0.21	3.70	0.36	
CB-8/YK-4	PC		361.1			150.4	511.50	43.63	
CB-10	P,I	12.50	5.97		4.2	18.2	41.00	14.29	
*CB-11	D,LP		35.00			13.40	48.40	4.17	
*CB-12	D,LP		22.00			31.5	53.50	3.78	
CB-15	LP		15.00			2.62	17.62	1.63	28.38
Sub-totals		**28.38**	**549.07**	**0.00**	**25.53**	**233.98**	**850.81**	**98.06**	**109.64**

Total Acres of Non-tidal Impacts	**43.46**
Total Mitigation Liability	**82.13**
Total Proposed Credits	**98.06**
Percent of Wetland Acreage Replacement	**65.3**

LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration/Enhancement/Creation activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

Table 5: Tidal Wetland Project Summary for the Chesapeake Bay Basin.

Project Information		Salt Marsh	SAV	Oyster	Tidal	Tidal	Mitigation	Proposed
Project #	Status	Rest	Rest	Rest	Enh	Pres	Acres	Credits
CB-1	D					13.50	13.50	1.35
CB-2	D					26.82	26.82	2.68
CB-5/CH12	PC				70.00		70.00	1.40
*CB-12	D,LP					75.00	75.00	7.50
Acre Sub-totals		**0.00**	**0.00**	**0.00**	**70.00**	**115.32**	**185.32**	**12.93**
Credit Sub-totals		**0.00**	**0.00**	**0.00**	**1.40**	**11.53**		

Total Acres of Tidal Impacts	**0.47**
Total Mitigation Liability	**0.47**
Total Proposed Credits	**12.93**
Percent of Wetland Acreage Replacement	**0.0**

LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration/Enhancement/Creation activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

*Project includes non-tidal wetland mitigation

As noted in Section II, the Fund has been used to mitigate for 1,399 linear feet of permitted stream impacts in the Chesapeake Bay River Basin through 2007. The following table summarizes the status, the protected stream length, and a description of the proposed or completed mitigation activities with the associated channel length for each activity for each stream project pursued by the Conservancy to serve as mitigation for impacts in the Chesapeake Bay Basin.

Table 6: Stream Project Summary for the Chesapeake Bay Basin.

Project ID	Project Status	Stream Mitigation Area (ac)	Channel Length in Mitigation Area (lf)	Mitigation Activity Description	Additional Protected Acreage
CB-3*	PC	24.24	6,613	Riparian buffer preservation of 6,613 lf along the right bank of Dragon Run with an existing mature wooded buffer extending 100 to 225 feet from the edge of the protected stream and wetland complex.	Reported under the wetlands summary
CB-4*	PC	5.55	2,205	Riparian buffer preservation of 2,205 lf along the right bank of Timber Branch Swamp with an existing mature wooded buffer extending 100 feet from the edge of the protected stream and wetland complex.	Reported under the wetlands summary
CB-6*	PC	7.12	1,550	Riparian buffer preservation of 1,550 lf along the right bank of Dragon Run with an existing mature wooded buffer extending 200 feet from the edge of the protected stream and wetland complex.	0.00
CB-11*	D, LP	3.60	800	Riparian buffer preservation of 800 lf along the right bank of Dragon Run with an existing mature wooded buffer extending 200 feet from the edge of the protected stream and wetland complex.	0.00
	Totals	**40.51**	**11,168**		**0.00**

ac - acre
lf - linear feet
LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration / Enhancement activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Buffer widths are sufficient to avoid mitigation value conflicts between wetlands and streams ("double-dipping").

Project Summaries

The following section provides a detailed summary of each project located within the Chesapeake Bay Basin for which the Corps authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

CB-1 Dameron Marsh (Smith 1)

The purpose of this project is to conduct non-tidal wetland establishment, non-tidal and tidal wetland preservation, and upland buffer restoration and preservation at the Dameron Marsh property in Northumberland County. The funding for this project was approved by the Corps on October 9, 1997. The site was purchased by the Conservancy on December 10, 1997. The site is now managed as a State Natural Area Preserve (NAP) by the Virginia Department of Conservation and Recreation (DCR) Natural Heritage Program. Long-term protection is achieved through the dedication and maintenance of the site as a NAP.

The Dameron Marsh NAP is located at the eastern terminus of State Route 693. The Chesapeake Bay and Cloverdale Creek border the site to the south and southwest, and Ingram Bay and Mill Creek border the site to the northeast and north. The site harbors populations of the federally endangered eastern tiger beetle (*Cicindela dorsalis* ssp. *dorsalis*) the protection of which was a primary reason for the purchase of this project parcel, as well as the adjacent 250 acre parcel (not funded by this program). The mitigation project area consists of approximately 64.64 acres including agricultural fields, uplands, and tidal areas. Based on landscape setting, hydrology, and analyses of vegetation in surrounding areas, the appropriate ecological community groups to target for restoration of the agricultural fields on this site consist of a mixture of maritime - loblolly pine forest, and estuarine - fringe pine forests. Major functions of the project include providing wildlife habitat and shoreline protection.

A portion of the property is comprised of tidal salt marsh preservation. Restoration activities were conducted in August of 2001 and included installation of a low profile berm system and small ditch plugs to prevent the drainage of surface water. Natural colonization of vegetation was utilized for this site. Approximately 15.88 acres of the agricultural fields have potential to establish primarily emergent wetlands and the surrounding higher ground (21.33 acres) will be restored to upland scrub and pine forest. The remaining acreage is wetland preservation. Automatic recording shallow groundwater monitoring wells were installed in 2002. A major objective of the project relating to vegetation is to control the invasive wetland weed, *Phragmites australis*, which was dominant in several acres when the site was purchased. Phragmites control has been conducted since 2001 and portions of the site were controlled by non-aerial methods in 2005 and 2006 representing a positive shift in those efforts, as reported by DCR. This reduction of Phragmites will allow a greater diversity of native plants to become established. The uplands have re-vegetated with native shrub species and the lower portions of the site where the drainage was blocked are dominated by emergent species. The majority of shallow groundwater hydrology wells installed at the site have met the Corps wetland hydrology requirement under normal circumstances based upon well data through the 2006 growing season. This is the sixth year post construction and mitigation monitoring is scheduled through 2011 with reports submitted to the Corps.

CB-2 New Point Comfort (Trimmer)

The purpose of this project is to conduct non-tidal and tidal wetland preservation and upland preservation at the Trimmer property located in Mathews County. The funding for this project was approved by the Corps on January 11, 2000. The property was purchased by the Conservancy on December 23, 1999. Long-term protection of the site is achieved through ownership by the Conservancy. No additional monitoring is required for this project.

The project is located within a Conservancy priority area with the focus to protect the habitat for the federally endangered eastern tiger beetle. This project, which is approximately 0.5 miles north of New Point Comfort Natural Area Preserve, contains tidal wetland preservation (26.82

acres), as well as, limited non-tidal wetland (7.20 acres) and upland (1.26 acres) preservation as well. A confirmed wetland delineation of the site will be scheduled in 2008 to determine mitigation credit. The Conservancy anticipates closing the project in 2008.

CB-3 Dragon Run (Calhoun 1; Piedmont Farms)

The purpose of this project is to conduct a non-tidal wetland, stream, and the associated upland riparian buffer preservation at the Dragon Run (Calhoun 1; Piedmont Farms) site in Middlesex County. The funding for this project was approved by the Corps on February 6, 2004. The property was acquired by the Conservancy on April 30, 2004. Two additional adjacent properties (projects CB-6 and CB-7) were acquired in separate purchases. Long-term protection will be achieved through the monitoring and enforcement of the conservation easement. No additional monitoring is required for this project.

The Dragon Run (Calhoun 1; Piedmont Farms) project is located north of the State Route 602 Bridge, which crosses Dragon Run Swamp. Dragon Run is considered one of the finest examples of intact bottomland wetland forest in Virginia and is a focus of land protection of the Conservancy, as well as, the state and other conservation partners. Dragon Run flows through the remote heart of the largest intact forest in the Chesapeake Bay Lowland ecoregion. The system harbors more than 165 plant, 90 bird, 45 tree, and 55 fish species. Five rare natural communities and 22 rare animal and plant species have been identified within the system.

The site is approximately 131.22 acres that is in a mixture of different uses including mature bottomland swamp, upland loblolly pine plantation forest, cleared timber land and unimproved dirt roads. However, the mitigation area is 83.77 acres, as certain activities will be allowed outside the designated "no-touch" buffers surrounding the aquatic resources.

A delineation of surface waters and wetlands on the property was conducted and confirmed by Corps in January 2006. The non-tidal wetland (59.53 acres) is comprised primarily of mature bottomland hardwood swamp. The delineation identified 6,613 linear feet of the right bank of Dragon Run located on the property. A "no-touch" buffer (24.24 acres) ranging from 100 to 225 feet will be maintained landward from the outside limits of the stream and wetland system. Other upland areas, designated as additional protected acreage, are estimated at 47.45 acres and are comprised of loblolly pine plantation forest and cleared timber land that will be managed and are not part of the mitigation acres. This site was sold subject to conservation easement in 2007. Proceeds from the sale, $143,195.52 were returned to the general balance of the Fund. The Conservancy will request official closure of this project in 2008.

CB-4 Dragon Run (Byrd)

The purpose of this project is to conduct non-tidal wetland, stream, and the associated upland riparian buffer preservation at the Dragon Run (Byrd) property in King and Queen County. The initial funding for this project was approved by the Corps on August 5, 2004. The Conservancy purchased the site on October 13, 2004. Long-term protection will be achieved in accordance with the deed restriction. No additional monitoring is required for this project.

Dragon Run is considered one of the finest examples of intact bottomland wetland forest in Virginia and is a focus of land protection of the Conservancy, as well as, the state and other conservation partners. Dragon Run flows through the remote heart of the largest intact forest in the Chesapeake Bay Lowland ecoregion. The system harbors more than 165 plant, 90 bird, 45 tree, and 55 fish species. Five rare natural communities and 22 rare animal and plant species

have been identified within the system.

The Dragon Run (Byrd) property is 42 acres that is forested and drains to Timber Branch Swamp, a tributary to Dragon Run. A delineation of surface waters was conducted by the Conservancy and approved by the Corps in 2006. Approximately 2.64 acres of non-tidal wetlands were identified on the property. The wetlands were identified on the northern boundary of the property where there is a natural drainage generally running west to east that supports forested wetlands. The delineation identified 2,205 linear feet of the right bank of Timber Branch Swamp located on the property. A 100 foot "no-touch" buffer (5.55 acres) will be maintained from the outside limits of the stream and wetland system. The remaining 33.81 acres may be subject to activities that exclude its appropriateness as compensatory mitigation, but can be viewed as additional protected acreage as they will not be developed. This site was sold subject to deed restrictions in 2007. Proceeds from the sale, $65,000.00 were returned to the general balance of the Fund. The Conservancy will request official closure of the project in 2008

CB-5/CH-12 Eastern Virginia Phragmites Control

The purpose of this project is to conduct tidal enhancement at six Natural Area Preserves and four State Parks over the period of 2002 - 2006. The funding for this project was approved by the Corps on August 30, 2002, September 9, 2003, and on August 31, 2004, for a total of $105,332.50. The Virginia Department of Conservation and Recreation (DCR) sponsored this project which proposed to spray over 300 acres of sensitive, managed lands that were infested with the invasive grass, *Phragmites australis* (Phragmites). Approximately half of the acreage was located within the Chesapeake Bay Basin, with the remaining half located within the Chowan River Basin. Long-term protection is achieved through maintenance of the areas as State Natural Area Preserves and State Park lands. DCR conducted plot monitoring after the treatments at specific preserves that concluded in 2006.

Recognizing the need for control of the invasive grass *Phragmites australis,* which readily invades coastal wetlands and can reduce plant diversity within sensitive natural areas, DCR along with the United States Fish and Wildlife Service (FWS) representatives in Rappahannock River basin and the Conservancy identified properties they manage in the greatest need of control. An initial grant provided by the National Fish and Wildlife Foundation supported Phragmites treatment efforts on several DCR and Conservancy preserves; however, to combat such a large problem repeated treatments were needed. In 2002, DCR coordinated with others on a multi-site, multi-year strategy to control Phragmites in sensitive natural areas. According to the Final Report (Natural Heritage Technical Report 06-12) of the 391 acres treated, approximately 140 acres (36% of treated areas) are now considered to be in maintenance phase, requiring only occasional ground-based treatments to maintain control of Phragmites at these sites. One notable finding of this work was that across all aerial treatments first time applications of the herbicide Habitat© yielded about 95% success, an increase over glyphosate-based products. Due to the unique nature of this project the Conservancy proposed crediting at a 50:1 ratio for tidal wetland enhancement for the two basins in which the project areas are located. Unspent funds were returned to the general fund in 2007. The Conservancy requested official closure of this project in 2007. Project closure was approved by the Corps in 2007 with 1.4 acres of tidal wetland credits assigned to the Chesapeake Bay Basin and 1.4 acres of tidal wetland credits assigned to the Chowan Basin.

CB-6 Dragon Run (Calhoun 2; Piedmont Farms)

The purpose of this project is to conduct non-tidal wetland and associated upland buffer

preservation and stream and the associated upland riparian buffer preservation at the Dragon Run (Calhoun 2; Piedmont Farms) site in Middlesex County. The funding for this project was approved by the Corps on February 1, 2005. The property was acquired by the Conservancy on July 13, 2005. Two additional adjacent properties (projects CB-3 and CB-7) were acquired in separate purchases. Long-term protection will be achieved through the monitoring and enforcement of the conservation easement. No additional monitoring is required for this project.

The Dragon Run (Calhoun 2; Piedmont Farms) project is located north of State Route 602 Bridge, which crosses Dragon Run Swamp and is adjacent to the previously described Calhoun 1 Piedmont Farms project. Dragon Run is considered one of the finest examples of intact bottomland wetland forest in Virginia and is a focus of land protection of the Conservancy, as well as, the state and other conservation partners. Dragon Run flows through the remote heart of the largest intact forest in the Chesapeake Bay Lowland ecoregion. The system harbors more than 165 plant, 90 bird, 45 tree, and 55 fish species. Five rare natural communities and 22 rare animal and plant species have been identified within the system.

The project area is approximately 60.44 acres that are in a mixture of different uses including mature bottomland swamp, upland loblolly pine plantation forest, cleared timber land and unimproved dirt roads.

A delineation of surface waters and wetlands of this property was conducted and confirmed by Corps in January 2006. The delineation identified 37.14 acres of wetland and an estimated 1,550 linear feet of the right bank of Dragon Run located on the property. A 200 foot "no-touch" buffer (7.12 acres) will be maintained from the outside limits of the stream and wetland system. The remaining 16.18 acres is upland that is preserved. The entire property (60.44 acres) is considered mitigation area. This site was sold subject to conservation easement in 2007. Proceeds from the sale, $55,676.88 were returned to the general balance of the Fund. The Conservancy will request official closure of this project in 2008.

CB-7 Dragon Run (Calhoun 3; Piedmont Farms)

The purpose of this project is to conduct non-tidal wetland and upland buffer preservation at the Dragon Run (Calhoun 3; Piedmont Farms) site in Middlesex County. The funding for this project was approved by the Corps on April 25, 2005. The property was acquired by the Conservancy on July 13, 2005. Two additional adjacent properties (projects CB-3 and CB-6) were acquired in separate purchases. Long-term protection will be achieved through the monitoring and enforcement of the conservation easement. No additional monitoring is required for this project.

The Dragon Run (Calhoun 3; Piedmont Farms) project is located north of Rt. 602 Bridge, which crosses Dragon Run Swamp and provides access and connectivity to the Calhoun 1 and 2 parcels that were previously acquired. Dragon Run is considered one of the finest examples of intact bottomland wetland forest in Virginia and is a focus of land protection of the Conservancy, as well as the state and other conservation partners. Dragon Run flows through the remote heart of the largest intact forest in the Chesapeake Bay Lowland ecoregion. The system harbors more than 165 plant, 90 bird, 45 tree, and 55 fish species. Five rare natural communities and 22 rare animal and plant species have been identified within the system.

A delineation of surface waters and wetlands of this property was conducted and confirmed by Corps in January 2006. The project area is approximately 3.70 acres that consists of 3.49 acres of forested wetland and 0.21 acres of upland loblolly pine plantation forest and dirt roads, all of which is considered mitigation area. This site was sold subject to conservation easement in 2007.

Proceeds from the sale, $3,043.61 were returned to the general balance of the Fund. The Conservancy will request official closure of this project in 2008.

CB-8/YK-4 Upper Crab Neck (BP America)

The purpose of this project is to conduct non-tidal wetland and upland buffer preservation at the Upper Crab Neck (BP America) site in York County. The funding for this project was approved by the Corps on April 21, 2005. The property was donated to the Conservancy by BP America on May 11, 2006. The Conservancy plans to transfer this site to the Virginia Department of Game and Inland Fisheries (DGIF) subject to Corps approval of the deed restriction. No additional monitoring is required for this project.

The Upper Crab Neck (BP America) property is located in Seaford, approximately 3 miles south of Yorktown and is an excellent example of a "non-riverine saturated forest." The site preserves an increasingly rare forested wetland community and protects the nearby Bay waters from degradation. Migratory fish such as American shad, hickory shad, alewife, blueback herring and striped bass use the Lower York and its tributaries, the Mattaponi and Pamunkey Rivers, for reproduction. In addition, this part of the York River is the gateway to one of the largest and most historic fisheries on the East Coast and is an essential place for migratory birds. The site is situated at a natural drainage divide such that the majority of the property drains to the Chesapeake Bay Basin, while a smaller portion drains south to the main stem of the York River Basin. The 653.7-acre property contains a large intact forested wetland (428.5 ac) with mature wooded uplands.

A delineation of surface waters and wetlands was confirmed by the Corps in April 2002 and the mapping from this delineation was used to estimate wetland and upland acres in Chesapeake Bay Basin and York River Basin using a GIS. The Conservancy is negotiating a transfer of the property, and will request official closure of the project once the transfer is completed.

CB-9 Guinea Neck Site

The purpose of this project is to conduct a feasibility study to address the potential for non-tidal wetland restoration and creation and upland buffer restoration at a property in Gloucester County. The funding request to complete a feasibility study for the site was approved by the Corps on June 1, 2006, and the feasibility study was completed in July of 2006.

The property is approximately 18 acres and is located in the lowlands of Guinea Neck. The property contained several home structures that were damaged from Hurricane Isabel in 2003, which is when the agricultural fields were allowed to become fallow. The farm fields include converted wetlands and a portion of the property contains a tidal creek which drains to Blevins Creek and eventually Mobjack Bay.

The feasibility report indicated several conditions that posed a high risk to achieving the objectives of non-tidal forested wetland restoration including the presence of invasive species on and adjacent to the site (*Phragmites* and *Typha*), potential for salt water intrusion and storm surge, poor soil macronutrient levels, and a lack of knowledge of groundwater levels. In addition, the cost of acquisition, implementation and management of the project was estimated to be relatively high and there was a time constraint on acquisition. Based upon the information that was collected in the feasibility study and the circumstances related to acquisition, the Conservancy determined this was not a favorable wetland mitigation opportunity and elected not to pursue any further activities for this project. The Conservancy requested official closure of this

project in 2007. Official closure of the project was approved by the Corps in 2007 with all approved funds utilized before closure.

CB-10 East River (Brooks/Ober)

The purpose of this project is to conduct a feasibility study to address the potential for non-tidal wetland restoration and creation and upland buffer restoration and to support acquisition activities at the East River (Brooks/Ober) property in Mathews County. The funding request to complete a feasibility study for the site and to support acquisition activities was approved by the Corps on October 5, 2006. The feasibility study was completed December 20, 2006. The project involves a donation of a conservation easement to the Middle Peninsula Land Trust (MPLT) and donation of fee simple interest to the Conservancy. Long-term protection will be achieved through the monitoring and enforcement of the easement by the MPLT.

The East River (Brooks/Ober) property is located off of State Route 605 in Mathews County. The site is 40.24 acres with approximately 16.16 acres in active cropland (corn and soybean rotation) and the balance in a mixture of forested upland and wetlands. The agricultural field was converted to agricultural uses through deforestation and installation of several ditches on the north, east and south edges of the field, as well as the southern edge and extending into the forest interior. These ditches drain directly to two tributaries that discharge to the East River. GIS mapping and field verification have identified prevalent hydric soils throughout the agricultural field, with non-hydric soils located at the west and east field edges.

A delineation of surface waters and wetlands was completed and submitted to the Corps on December 20, 2006. This delineation identified 5.87 acres of forested wetlands on the property; however, this must be confirmed by the Corps. The conceptual mitigation plan indicates that perhaps as many as 14 wetland mitigation credits may be developed on the site; however, a better understanding of seasonal groundwater levels is critical to the design. Based upon the information that was collected in the feasibility, the Conservancy determined it is a suitable non-tidal wetland mitigation opportunity and secured funding in 2007 to restore 12.5 acres of forested non-tidal wetlands and 4.2 acres of upland field in 2008 through vegetation establishment techniques. The project will also include the preservation of 5.97 acres of non-tidal forested wetland and 18.2 acres of upland forest. The monitoring period for the site will begin in 2009 and continue until 2018 with reports being submitted to the Corps.

CB-11 Dragon Run Site

The purpose of this project is to conduct non-tidal wetland and associated upland buffer preservation and stream and the associated upland riparian buffer preservation at this site in King and Queen County. The funding for this project was approved by the Corps on December 7, 2006. The property is pending closure of the land acquisition by the Friends of Dragon Run. Long-term protection will be achieved through a conservation easement placed on the property with the Virginia Outdoors Foundation (VOF). Long-term protection of the site will be accomplished through the monitoring and enforcement of the easement by VOF. No additional monitoring is required for this project.

The property is located along Dragon Run River and Mill Race, a smaller tributary in King and Queen County. Dragon Run is considered one of the finest examples of intact bottomland wetland forest in Virginia and is a focus of land protection of the Conservancy, as well as, the state and other conservation partners. Dragon Run flows through the remote heart of the largest intact forest in the Chesapeake Bay Lowland ecoregion. The system harbors more than 165 plant,

90 bird, 45 tree, and 55 fish species. Five rare natural communities and 22 rare animal and plant species have been identified within the system.

The site is 52.0 acres with an approximately 35.0 acre wetland complex along Dragon Run that has not been disturbed in over 100 years. The upland portions of the site (~13.40 acres) were clearcut by the landowner during 2005; however, buffers were left along Mill Race and wetlands.

Stream mitigation consists of the preservation of a 200 foot mature forested riparian buffer along the right bank of approximately 800 linear feet (3.60 acres) of Dragon Run at the southern end of the property. This avoids the "double-dipping" issue for claiming the wetland credits proposed above. A confirmed delineation of the site is required to determine mitigation credit. The Conservancy anticipates closing the project in 2008.

CB-12 Guilford Shores Site

The purpose of this project is to conduct tidal wetland, non-tidal wetland, and upland buffer preservation at a site in Accomack County. The initial funding for this project was approved by the Corps on December 7, 2006. A donated conservation easement to the Conservancy providing long-term protection is pending closure. No additional monitoring is required for this project.

The property is located off of State Route 682 in Accomack County. The site is 128.5 acres situated at the confluence of Young Creek to the southwest and Guilford Creek to the north. Access to the property is extremely difficult as there are no roads or well marked trails through the woods. The woods contain excellent migratory bird habitat with many understory levels providing excellent vegetated vertical structure for foraging birds. Such habitats are especially important for the young of the year songbirds during migration, as they are known to circle back up the bayside shore during migration as they delay crossing the mouth of the Chesapeake on their journey south. The migrants that use the property and its associated wetland and upland habitats include virtually the whole complement of neotropical and temperate songbirds and raptors of the Atlantic Flyway. Among the most important species that will benefit directly from this project are the seaside and salt marsh sharp-tailed sparrows, mallards, American black ducks, black rails, and northern harriers. Osprey is also common to the area, as are red-tailed hawks and American kestrels. Sharp-shinned hawks, merlins, bald eagles (federally and state threatened), short-eared owls, and Northern saw-whet owls (state species of concern), are among the other raptors known to the property. Peregrine falcons (state threatened) use the area for foraging during migration.

The majority of the property consists of tidal salt marsh (75.0 acres) while National Wetlands Inventory (NWI) mapping indicates approximately 22.0 acres of forested wetlands and 31.5 acres of uplands. Negotiations with the landowners have not yielded a viable mitigation project. The Conservancy anticipates closing this project without implementing the proposed preservation in 2008.

CB-13 – Dameron Marsh/Hughlett Point/Fleet Bay site

The purpose of this project is to conduct non-tidal and tidal wetland preservation at this site in Northumberland County. The funding for a wetland assessment to determine mitigation potential on this project was approved by the Corps on July 27, 2007. Long-term protection will be achieved through a conservation easement being placed on the property. Monitoring and enforcement of the easement will provide the long-term protection. No additional monitoring would be required for this project.

The +/-563-acre property includes approximately 48 acres of working farmland/open fields, over 200 acres of NWI wetlands, and approximately 300 acres of forested land in two parcels that are physically joined but in separate ownership. The southern portion of the property is +/-324 acres and contains working farmland and managed forestland on relatively flat land some of which is underlain by hydric soils. This portion of the site is mostly forested except for two agricultural areas or open fields (17.9 and 13.9 acres each) and one residence. The northern portion of the property is approximately +/-239 acres and is comprised of mostly low lying forestland, most of which is considered wetlands by NWI data. This portion of the tract contains one 16.2 acre agricultural field and two residences.

The landowners are very interested in working with the Conservancy on a conservation easement for this property. The Conservancy has proposed to preserve, as mitigation, all the wetlands and shoreline contained on the property. To determine the extent of the wetlands, which NWI has indicated encompasses over 200 acres on this site; a wetland assessment was completed in 2007. Using the information regarding the extent of the wetlands, the Conservancy will finalize negotiations with the landowner and present a second proposal for site acquisition if applicable.

CB-14 – Harris Creek Site

The purpose of this project is to conduct non-tidal and tidal wetland preservation for wetland mitigation at this site in Hampton along Back River. The 170 acre property has approximately 109 acres of tidal wetlands and 47 acres of non-tidal wetlands on it. A wetland delineation will need to be completed to determine exact wetland acres by type for mitigation credit assessment. The funding for an appraisal of the property to determine fair market value was approved by the Corps on August 10, 2007. The appraisal will be used to negotiate the purchase of the property.

CB-15 – Dragon Run Site

The purpose of this project is to conduct a wetland and upland buffer stream preservation project along in Dragon Run in, King and Queen County, Virginia. On August 13, 2007 The Corps approved the purchase a conservation easement over the 46 acre property. Long-term protection will be provided by a conservation easement on the property. Monitor and enforcement of the conservation easement will maintain the long-term protection of the property.

In December 2006, the Corps approved funding for the Trust Fund to protect a 52 acre parcel, project CB-11, along the right bank immediately downstream of this property. The Nature Conservancy is working with a number of landowners adjacent to this project to protect the other side of Dragon Run. This tract will link the conservation easement to the south, developing conservation projects to the north and east, and a TNC preserve to the southeast.

The site contains a wetland complex (estimated 15 acres) along Dragon Run that has not been disturbed in over 100 years. Approximately All 23 upland acres are being managed for Loblolly pine and Longleaf pine growth. The current land use is not detrimentally affecting water quality at the site. The managed timber areas provide a buffer along the Dragon Run complex. The stream and wetland resources on the property and all timbering practices will be in accordance with a forest management plan approved by the Conservancy.

The Nature Conservancy is currently pursuing the purchase of this property. There is one home on the

property, but the potential exists to develop the site into a total of three (3) waterfront homes, making the acquisition of the property important to the protection of the Dragon Run.

Chowan River Basin

The Chowan River Basin is comprised of five HUCs (03010201, 03010202, 03010203, 03010204, and 03010205) located in southeastern Virginia extending into northeastern North Carolina. It encompasses the northernmost portion of the Albermarle-Pamilico and is among the best developed embayed wetland environments of the outer Mid-Atlantic Coastal Plain Ecoregion estuary and includes much of the original extent of the Great Dismal Swamp. Conservation targets include blackwater swamp aquatic system, riverine and basin swamp forest, brownwater tributaries and rivers, Atlantic white cedar swamp, bottomland hardwood forest, Roanoke logperch, Atlantic pigtoe, red cockaded woodpecker, and seepage wetlands.

The projects discussed in this section serve as mitigation for permitted impacts within the Chowan River Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue thirteen mitigation projects in this basin. The Corps has authorized funds for all thirteen projects. Twelve projects provide mitigation for permitted impacts to non-tidal wetlands, and one project (CB-5/CH-12) provides mitigation for permitted impacts to tidal wetlands.

Due to a hydrological modification at the site, one of the non-tidal wetland projects (CH-9/LJ-4) mitigates for impacts within both the Chowan River Basin and the Lower James River Basin. Due to the location of the site, one of the non-tidal wetland projects (CB-5/CH-12) mitigates for impacts within both the Chowan River Basin and the Chesapeake Bay Basin. The total funds authorized by the Corps and crediting value for these projects have been appropriately divided between the respective basins.

The following table provides a summary of projects for which funds were approved in the Chowan River Basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table 7: Approved Project Summary for the Chowan River Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized		
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)
CH-1	Northwest River (Kellam Rigato)	M	12/20/95	37,020.00	0.00	0.00
CH-2	North Landing River (Onesimus Ministries)	M	6/30/97	24,325.00	0.00	0.00
CH-3	Dismal Swamp (Bruff)	M	10/27/97	37,000.00	0.00	0.00
CH-4	North Landing River (Mayo)	M	8/28/98	8,800.00	0.00	0.00
CH-5	Northwest River (Benefits)	M	10/13/98	331,214.88	0.00	0.00
CH-6	Northwest River (Hall)	M	5/26/99	143,203.88	0.00	0.00
CH-7	Nawney Creek (Knight)	M	5/23/00	120,110.37	0.00	0.00
CH-8	Northwest River (Su)	M	3/16/01	395,230.10	0.00	0.00
CH-9 / LJ-4	Northwest River (Stephens)	M	7/17/02	625,000.00	0.00	0.00
CH-10	Northwest River (Powers)	M	3/7/03	333,341.00	0.00	0.00
		M	10/27/04	20,000.00	0.00	0.00
CH-11	Nawney Creek (Fentress)	M	12/19/03	135,000.00	0.00	0.00
CB-5 / CH-12	Eastern Virginia Phragmites Control	M	8/30/02	0.00	20,000.00	0.00
			9/9/03	0.00	20,000.00	0.00
			8/31/04	0.00	12,666.25	0.00
CH-13	Northwest River (SP Forests, LLC)	M	2/2/06	366,700.00	0.00	0.00
			Totals	**2,576,945.23**	**52,666.25**	**0.00**
			Grand Total	**2,629,611.48**		

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following tables summarize the status, proposed mitigation activity type and associated acreage, and proposed credit for each non-tidal and tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the Chowan River Basin. In addition, the tables provide the amount of impact acres in the basin, the total mitigation liability in credits, and a measure of the wetland area that is proposed to be replaced through restoration or creation activities in comparison to the amount impacted.

Table 8: Non-Tidal Wetland Project Summary for the Chowan River Basin.

Project Information		NT Wetland (Ac)			Upland (Ac)		Mitigation	Proposed
Project ID	**Status**	**Rest/Cr**	**Pres**	**Enh**	**Rest**	**Pres**	**Acres**	**Credits**
CH-1	D		125.34			40.55	165.89	14.56
CH-2	PC		51.80			2.40	54.20	5.30
CH-3	M	3.07			6.93		10.00	3.53
CH-4	PC		9.45			3.75	13.20	1.13
CH-5	D	11.96	745.98	15.02		25.10	798.06	92.82
CH-6	M	25.00			2.00	3.80	30.80	25.32
CH-7	M	8.00			10.00		18.00	8.67
CH-8	M,CA	49.00	73.28		4.00	7.00	133.28	56.94
CH-9/LJ-4	M,CA	61.00	112.10		10.00	2.80	185.90	73.02
CH-10	M,D,CA	25.25	97.10		0.50	60.15	183.00	38.00
CH-11	M,CA	19.00			3.79		22.79	19.25
CH-13	P	27.5	122.5				150.00	39.75
Sub-totals		**229.78**	**1,212.21**	**15.02**	**37.22**	**145.55**	**1,765.12**	**378.30**

Total Acres of Non-tidal Impacts	**33.44**
Total Mitigation Liability	**59.92**
Total Proposed Credits	**378.30**
Percent of Wetland Acreage Replacement	**687.1**

LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration/Enhancement/Creation activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

Table 9: Tidal Wetland Project Summary for the Chowan River Basin.

Project Information		Salt Marsh	SAV	Oyster	Tidal	Tidal	Mitigation	Proposed
Project #	**Status**	**Rest**	**Rest**	**Rest**	**Enh**	**Pres**	**Acres**	**Credits**
CB-5/CH12	PC				70.00		70.00	1.40
Acre Sub-totals		**0.00**	**0.00**	**0.00**	**70.00**	**0.00**	**70.00**	**1.40**
Credit Sub-totals		**0.00**	**0.00**	**0.00**	**1.40**	**0.00**		

Total Acres of Tidal Impacts	**0.01**
Total Mitigation Liability	**0.01**
Total Proposed Credits	**1.40**
Percent of Wetland Acreage Replacement	**0.0**

LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration/Enhancement/Creation activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

As noted in Section II, the Fund has been used to mitigate for 911 linear feet of permitted stream impacts in the Chowan River Basin through 2007. To date, the Conservancy has not requested any funds for stream mitigation projects in the Chowan River Basin.

Project Summaries

The following section provides a detailed summary of each project located within the Chowan River Basin for which the Corps authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

CH-1 Northwest River (Kellam Rigato)

The purpose of this project is to conduct non-tidal wetland and upland buffer preservation at the Northwest River (Kellam Rigato) property in the City of Chesapeake. The funding for this project was approved by the Corps on December 20, 1995. The site was purchased by the Conservancy on December 22, 1995. Long-term protection is achieved through Conservancy ownership. No additional monitoring is required for this project.

The Northwest River (Kellam Rigato) property is located on the Northwest River east of Route 168 approximately one mile north of the Virginia and North Carolina border. This property is 165.89 acres the majority of which is forested wetland. The land adjacent to this site had been timbered and there was a threat that this property could be deforested as well. This site adds to the protection of wetlands and uplands within the Northwest River corridor which is a conservation focus of the Conservancy. A confirmed wetland delineation of the site will be performed in 2008 to determine mitigation credit. The Conservancy anticipates closing the project in 2008.

CH-2 North Landing River (Onesimus Ministries)

The purpose of this project is to conduct non-tidal wetland and upland buffer preservation at the North Landing River (Onesimus Ministries) property in Chesapeake. The funding for this project was approved by the Corps on June 30, 1997. The site was purchased by the Conservancy on November 24, 1997. Long-term protection is achieved through Conservancy ownership. No additional monitoring is required for this project.

The property, located within the floodplain of Pocaty Creek, was identified by the Conservancy as a high priority wetland preservation area. The majority of the property contains forested wetlands largely dominated by Water tupelo gum (*Nyssa aquatica*) and Bald cypress (*Taxodium distichum*). These are unique wetland resources because they are affected by seasonal wind tides. In fact, an inventory by the Virginia Department of Conservation and Recreation (DCR) Natural Heritage Program that was conducted in the 1990's found the wetlands of the North Landing and Northwest River systems to be the most biologically diverse sites in Virginia east of the Blue Ridge Mountains. This project extends the Conservancy's North Landing River preserve up Pocaty Creek toward a 250-acre Natural Resources Conservation Service (NRCS) wetland restoration project providing a critical wildlife corridor.

A delineation of surface waters was conducted by the Conservancy and confirmed by Corps in 2003. The property is 54.20 acres including 51.8 acres of forested wetland preservation and 2.40 acres of forested upland buffer. The Conservancy requested the official closure of this project in 2007. Official closure of the project was approved by the Corps in 2007 with 5.3 acres of non-

tidal wetland credits being assigned to the project. All unspent funds were returned to the general fund.

CH-3 Dismal Swamp (Bruff)

The purpose of this project is to conduct non-tidal wetland restoration and upland buffer restoration at the Dismal Swamp (Bruff) property in Suffolk County. The funding for this project was approved by the Corps on October 27, 1997. The site was purchased by the Conservancy on January 20, 1998. The site will be transferred with an approved protective instrument to the United States Fish and Wildlife Service (FWS) after the monitoring period.

The Dismal Swamp (Bruff) property is located on the Dismal Swamp scarp within ¼ mile south of the Great Dismal Swamp National Wildlife Refuge office off of Desert Road in Suffolk. The project represents a cooperative effort between the Corps, the Conservancy, and FWS who will ultimately own the site and manage it with the rest of the Great Dismal Swamp National Wildlife Refuge (GDSNWR) pending approval and release of the project by Corps. This site was included in a study conducted by a graduate student from Virginia Tech, the results of which have produced a master's thesis and a journal article related to soil science and wetland restoration. Finally, technicians from the Virginia Institute of Marine Science (VIMS) monitored shallow groundwater wells at this site to help support the development of a Hydrogeomorphic Model for deciduous hardwood flat wetlands.

The property consists of 10 acres of farmland. A portion of the site was drained by a ditch to north of the agricultural fields. Initial planning identified as much as 5 acres that could be restored by eliminating the drainage from this ditch. The natural community type for restoration is non-riverine wet hardwood forest and the primary functions to be restored include wildlife habitat, water quality enhancement, as well as expanding the footprint of GDSNWR. Water control structures were installed in the collector ditch in 1999, several lateral ditches in the fields were plugged, and the fields were planted to native wetland hardwoods. The original agreement pertaining to monitoring was to have the partners complete complementary sections of the site monitoring; however, no specific monitoring standards or success criteria were assigned to the project by the Corps. Virginia Tech and VIMS installed and maintained 12 automatic recording shallow groundwater wells both in the agricultural fields and in the adjacent forest from 2000 through 2003 and FWS conducted vegetation monitoring of the planted seedlings during the second year. The Conservancy collected hydrology and vegetation information in 2005 and 2006. Based upon the information collected from the site thus far the scope of the wetland restoration portion of the project was reduced to 3-5 acres as hydrological restoration of certain areas appears to be doubtful. The site was naturally colonized by a large number of loblolly pines which were overcrowding the planted and naturally colonizing hardwood seedlings; therefore, the FWS sponsored a thinning of the pine during the winter of 2005 in the effort to release the remaining hardwoods from competition, which has had some success. Due to the age of the project and the low chance of success of any corrective action, the Conservancy will recommend closing the project and accepting the credits for the current conditions based on a delineation In its current conditions the property is functioning as a good buffer to the Great Dismal Swamp NMR. In 2008 a request to close the project will be made to the Corps.

CH-4 North Landing River (Mayo)

The purpose of this project is to conduct non-tidal wetland and upland buffer preservation at the North Landing River (Mayo) property in Chesapeake. The funding for this project was approved by the Corps on August 28, 1998. The site was purchased by the Conservancy on October 15,

1998. Long-term protection is achieved through Conservancy ownership. No additional monitoring is required for this project.

The property, located within the floodplain of Pocaty Creek, was identified by the Conservancy as a high priority wetland preservation area. The majority of the property contains forested wetlands largely dominated by Water tupelo gum (*Nyssa aquatica*) and Bald cypress (*Taxodium distichum*). These are unique wetland resources because they are affected by seasonal wind tides. In fact, an inventory by the Virginia Department of Conservation and Recreation (DCR) Natural Heritage Program that was conducted in the 1990's found the wetlands of the North Landing and Northwest River systems to be the most biologically diverse sites in Virginia east of the Blue Ridge Mountains. This project extends the Conservancy's North Landing River preserve up Pocaty Creek toward a 250-acre Natural Resources Conservation Service (NRCS) wetland restoration project providing a critical wildlife corridor.

A delineation of surface waters was conducted by the Conservancy and approved by Corps in 2003. The property is 13.20 acres with 9.45 acres of forested wetland preservation with 3.75 acres of forested upland buffer. The Conservancy requested the closure of this project in 2007. Official closure of the project was approved by the Corps in 2007 with 1.13 acres of non-tidal wetland credit being assigned to the project.

CH-5 Northwest River (Benefits)

The purpose of this project is to conduct non-tidal wetland restoration, and enhancement and non-tidal wetland and upland buffer preservation at the Northwest River (Benefits) property in southern Chesapeake. The funding for this project was approved by the Corps on October 13, 1998. The site was purchased by the Conservancy on December 17, 1998 and long-term protection is achieved through this ownership. Two adjacent properties (projects CH-6 and CH-8) were acquired in separate purchases, both of which involve significant wetland restoration acres. This is the seventh year post construction and mitigation monitoring is scheduled through 2007 with reports submitted to the Corps.

The Northwest River (Benefits) property is located in southern Chesapeake on a tributary to the Northwest River. The Conservancy acquired the property in three separate transactions comprises approximately 798 acres of predominantly forested wetlands. This property represents one of the last large, contiguous forest blocks that can be protected in an area that was historically called the "Green Sea" due to its vast unbroken complex of forest swamps and marshes. The wetland upland complex provides interior forest habitat that may be utilized by neo-tropical migratory bird species and unique wildlife such as Canebrake Rattlesnakes (*Crotalus horridus*), American Black Bears (*Ursus americanus*) and Least Trillium (*Trillium pusillum* var. *virginianum*) are known to inhabit this site. This site contributes to a +1,200-acre protected land corridor from Hall (CH-6) and Su (CH-8) through to an adjacent mitigation bank on the Northwest River.

A large ditch and road complex existed on the site draining nearly 12 acres of the forest immediately adjacent to the ditch. In the summer of 2000 the ditch was plugged in six locations initiating restoration of the drained forest area. Automatic recording shallow groundwater monitoring wells were installed in 2000 to monitor the hydrological restoration, which based upon the results to date has been very successful. Because success for this site is confined to hydrology and the site has exceeded the critical threshold for wetlands hydrology at each station in most years under a variety of climatic conditions (including very dry), the Conservancy will seek to close the monitoring aspect of this project in 2008. A confirmed delineation of the site is

required to determine mitigation credit.

CH-6 Northwest River (Hall)

The purpose of this project is to conduct non-tidal wetland and upland buffer restoration and upland buffer preservation at the Northwest River (Hall) property in southern Chesapeake. The funding for this project was approved by the Corps on May 26, 1999. The site was purchased by the Conservancy on December 17, 1998 and long-term protection is achieved through this ownership. Two adjacent properties (projects CH-5 and CH-8) were acquired in separate purchases, together representing significant wetland restoration and preservation acres.

The Hall Property is 30.80 acres and in contrast to the relatively undisturbed, forested wetland condition of Benefits property, the majority of the Hall property was actively drained and maintained as farmland. This site contributes to a +1,200-acre protected land corridor from Benefits (CH-5) and Su (CH-8) through the Davis/Tseng mitigation bank, to the Northwest River. Historically this mineral flat area was connected to the Great Dismal Swamp and sustained non-riverine wet hardwood forest. Approximately 27 acres of cropland and 4 acres of adjacent forest were drained by a complex of 9 lateral field ditches that led to a major collector ditch representing an opportunity for wetland restoration. The objectives of this project are to restore/establish 25 acres of forested wetland, restore 2 acres of upland buffer and preserve 3.80 acres of forested upland. The natural community type for restoration is non-riverine wet hardwood forest and the primary functions to be restored include wildlife habitat and water quality enhancement.

In 2001 all the lateral field ditches at this site were filled, several deeper borrow areas were created, and a containment berm separating the fields from the collector ditch (which could not be plugged) was constructed. The fields on the site were planted with 6,000 various hardwood wetland trees. Automatic recording shallow groundwater monitoring wells were installed in the fields and adjacent forest in 2001 and have been used to monitor the hydrological restoration annually. Planted seedling survival was measured along transects, and other vegetation monitoring (estimates of colonizing seedling density and estimates of herbaceous cover) was conducted within vegetation plots. Monitoring results for the first six years of shallow groundwater monitoring demonstrate that the site hydrology is dependent upon climate factors including the amount and distribution of precipitation and temperature, which is typical of groundwater maintained wetlands. The shallow groundwater wells have exceeded the critical threshold for wetlands hydrology at each station in most years. Across the majority of the site planted seedling survival in combination with naturally colonizing seedlings well-exceeds 400 stems per acre and are composed primarily of native, wetland species. Based upon soil sampling conducted prior to the wetland restoration activities, there is a slight ridge of approximately 5 acres that did not exhibit hydric soils criteria, but where shallow groundwater wells indicate wetland hydrology is present. Thus, this area must be carefully evaluated during the final site delineation to confirm/determine the extent to which wetlands are established. Due to the overall success of the site in meeting wetland criteria in most years, the Conservancy will request to close this project in 2008.

CH-7 Nawney Creek (Knight)

The purpose of this project is to conduct non-tidal wetland and upland buffer restoration at the Nawney Creek (Knight) property in Virginia Beach. The funding for this project was approved by the Corps on May 23, 2000. The site was purchased by the Conservancy on September 27, 2000, and long-term protection is achieved through this ownership.

The Nawney Creek (Knight) property is located on Princess Anne Road in the City of Virginia Beach approximately ¼ mile northeast of the community of Back Bay. The 18 acre property consisted of eleven agricultural fields separated by ditches that were primarily in soybean production. The site was considered an important acquisition within the Back Bay sub-watershed, which is quickly developing. The initial objectives of the project included restoration of 17.0 acres non-riverine wet hardwood forest and one acre of Mesic mixed forest and the primary functions to be restored include wildlife habitat and water quality enhancement.

In early 2001 interior field ditches were plugged, a perimeter berm system was installed with a water control structure to retain surface water and to prevent flooding an adjacent property, limited grading to provide fill material for ditches and berms was completed, and 4,500 seedlings of various wetland hardwoods were planted. Five automatic recording shallow groundwater monitoring wells were installed in 2002 and monitored annually. Based upon site observations and the well data collected thus far there are portions of the site that fail to meet the Corps hydrology criteria in most years. These are primarily those areas that are adjacent to perimeter ditches or located at field crowns both areas which tend to support non-hydrophytic herbaceous vegetation and comprise up to 50% of the property. There is obvious wetland development in the vicinity of interior ditches that were plugged and are at slightly lower elevations than field crowns as evidenced by prolonged standing water and the presence of a dominance of hydrophytes. Survival of planted seedlings is high and growth is good. Seedling density is below 400 stems per acre in most areas, but since no minimum density standard was prescribed to this project and because the surviving plantings are heavy mast, large canopy species (primarily oaks), the Conservancy does not recommend re-planting. While corrective action of hydrology through grading is a possibility, such activities have a high risk of failure and would be relatively expensive. In light of these facts, the Conservancy reduced the scope of the wetland restoration acres to approximately 8.0 acres with the remaining 10.0 acres as upland restoration. This site is on a post construction and mitigation monitoring plan that extends through 2012 with reports submitted to the Corps.

CH-8 Northwest River (Su)

The purpose of this project is to conduct non-tidal wetland restoration and upland buffer restoration and non-tidal wetland and upland buffer preservation at the Northwest River (Su) property in southern Chesapeake. The funding for this project was approved by the Corps on March 16, 2001. The site was purchased by the Conservancy on April 28, 2000, and long-term protection is achieved through this ownership. Two adjacent properties (projects CH-5 and CH-6) were acquired in separate purchases, together representing significant wetland restoration and preservation acres.

The Northwest River (Su) property is 133.28 acres located in southern Chesapeake off of Benefit Road. The property contains approximately 73 acres of forest including forested wetlands and 60 acres of cropland. The objectives of this project are to restore up to 56 acres of primarily forested wetland (PFO1) and restore 4 acres of upland buffer, while preserving upland and forested wetland. The primary functions to be restored include wildlife habitat and water quality enhancement. This site contributes to a +1,200-acre protected land corridor from Benefits (CH-5) and Hall (CH-6) through the Davis/Tseng mitigation bank, to the Northwest River. Historically this mineral flat area was connected to the Great Dismal Swamp and sustained Non-Riverine wet hardwood forest. Virginia Least Trillium (*Trillium pusillum* var. *virginianum*) and Canebrake rattlesnake have been observed on this site. The Conservancy used National Wetlands Inventory (NWI) mapping and on-site investigation to estimate wetland extent, but must secure a confirmed

delineation of surface waters and wetlands to determine the jurisdictional wetland acres and upland acres preserved by this acquisition that can be utilized as mitigation.

Wetland and habitat restoration efforts began in 2001 and included plugging of field ditches, creation of several seasonally flooded ponds, construction of a berm system, and planting of 15,000 bare root seedlings in the agricultural fields. Additionally several ditches were plugged within the forested area of this site. Eight automatic recording shallow groundwater monitoring wells were installed in 2002 and monitored annually. In addition, 8 manually read shallow groundwater wells were installed in 2003 and have been monitored when capacity allows. On the whole, hydrological monitoring results for the first five years indicate that the majority of the restoration area of the site (~49 acres) is saturated to a depth and duration during the growing season so as to support the wetland hydrology criteria under normal conditions. Seedling densities including planted and volunteer species differ depending upon hydroperiod with higher densities occurring in drier areas of the site and lower densities in wetter areas of the site. Monitoring and observations of the vegetation development on the site indicate that Loblolly pine is colonizing in large numbers particularly in the drier areas of the site (~5 acres); however, the majority of other colonizing woody sapling species are native, wetland plants. A pine thinning operation within roughly one-half of the site in 2008 would increase the dominance of hardwood saplings. The Conservancy is investigating the cost and timing of these treatments. An approximately 2.8-acre area is has been invaded by cattail (*Typha latifolia*). This area is well contained by topography and has little threat of jeopardizing the rest of the restoration. At this point monitoring of cattail stand size and locations is not a concern, although volunteer efforts to remove it may be explored. Generally, given the favorable hydrological and vegetation monitoring thus far, the Conservancy expects approximately 49.0 acres to continue to meet wetland criteria. This is the sixth year post construction and mitigation monitoring is scheduled through 2011 with reports submitted to the Corps.

CH-9/LJ-4 Northwest River (Stephens)

The purpose of this project is to conduct non-tidal wetland restoration and upland buffer restoration and non-tidal wetland and upland buffer preservation at the Northwest River (Stephens) property in Chesapeake. The funding for this project was approved by the Corps on July 17, 2002. The Conservancy proposed to restore wetlands and uplands through site modifications and to preserve wetlands and uplands. The site was purchased by the Conservancy on November 15, 2002, and long-term protection is achieved through this ownership.

The Northwest River (Stephens) tract is located off of Cornland Road in Chesapeake. The property is an important contributor to a northern spur corridor connecting the Northwest River and the Great Dismal Swamp National Wildlife Refuge. This site added 366 acres to the approximately 1,000-acre Green Sea preserve which includes Benefits (CH-5), Hall (CH-6), and Su (CH-8) tracts. Historically this mineral flat area was connected to the Great Dismal Swamp and sustained non-riverine wet hardwood forest. The Stephens parcel contains 226 acres of forested wetland with 142 acres of converted agricultural land. The objective of the Stephens project is to restore the 142 acres of cropland to a mixture of forested wetland (122 acres) and forested upland buffer (20 acres). The primary functions to be restored include wildlife habitat and water quality enhancement. Although it is located within the 03010205 HUC, a large portion of the site drains to the Dismal Swamp Canal, one of the largest tributaries to the Elizabeth River (HUC 2080206), thus, this project and the associated wetland mitigation is evenly split among those two river basins.

In 2003 the site was planted with 50,500 bare root seedlings and 6,000 shrubs and in 2004 interior

field ditches were plugged, and a perimeter berm system was constructed. Automatic recording shallow groundwater monitoring wells were installed in 2004 in representative locations and several hand monitored shallow groundwater wells used for site evaluation in 2003 were retained for monitoring. Annual shallow groundwater monitoring indicates that much of the site exceeds the target threshold for hydrology under normal conditions, although well stations that are located in close proximity to unplugged perimeter ditches experience the least promising hydrology results. While this drainage was anticipated, continued monitoring is necessary to determine the extent of drainage that prevents wetland establishment. Even in the overall dry conditions of the area in 2007, a majority of the wells met wetland hydrology criteria. Survival of planted seedlings is high within much of the site and many species displayed fairly vigorous growth. Red maple and sweet gum are the dominant colonizing, volunteer woody species across the entire site. This is most obvious at the north end of the restoration fields adjacent to a mature forest line and a large ditch which the Conservancy was not permitted to block where colonizing seedlings are out-competing planted seedlings. However, based upon the monitoring the majority of woody species that will comprise the dominant stratum of the site are native wetland plants. The 2007 monitoring of the site identified two aggressive invasive species on the site. Purple loosestrife (*Lythrum salicaria)* and Chinese privet *(Ligustrum sinense)* are present in areas on the site. Corrective action to control these two species will be explored in 2008. The Conservancy observed three structural failures at the northern edge of the field where ditch blockages placed in front of culverts are leaking, perhaps resulting in limited drainage of the field. The Conservancy proposes to have a contractor complete the necessary site adjustments during 2008. This is the third year post construction and mitigation monitoring is scheduled through 2013 with reports submitted to the Corps.

CH-10 Northwest River (Powers)

The purpose of this project is to conduct non-tidal wetland restoration and non-tidal wetland and upland buffer preservation at the Northwest River (Powers) property in Chesapeake. The initial funding for this project was approved by the Corps on March 7, 2003. The Conservancy requested additional funding for acquisition and restoration, which was authorized by the Corps on October 27, 2003. The site was purchased by the Conservancy on January 31, 2001 and the site has been designated as a Natural Area Preserve under the management of Department of Conservation and Recreation (DCR).

The Northwest River (Powers) tract is located in Chesapeake, off of Ballahack Road, less than one mile west of the Route 168 Northwest River crossing. The property is 183.00 acres with 25.75 acres of prior-converted farmland and the balance is a mix of bottomland hardwood wetland and mixed upland forest with frontage on Dolley Creek, a tributary of the Northwest River. The tract was identified by the Conservancy as a priority tract for protection within the Northwest River corridor. The goal of this project is to restore the pre-ditched hydrologic regime and wetland vegetative structure of 20.75 acres of former agricultural fields to forested wetlands and 4.5 acres to scrub-shrub wetlands that will be maintained within a power line right of way and 0.5 acres of upland restoration. The natural community type for restoration is Non-Riverine wet hardwood forest and the primary functions to be restored include wildlife habitat and water quality enhancement. The northern section of the property is forested and contains approximately 97 acres of forested wetland and 60 acres of forested upland that may be preserved.

A closely spaced ditch network drained the agricultural fields on the site. In late 2004 the ditches in the agricultural fields were filled, the fields were graded to remove field crowns, and a perimeter berm was installed to prevent flooding adjacent properties. In early 2005 the restoration site was planted with 6,300 and 2,800 bare root tree and shrub seedlings respectively.

Five automatic recording shallow groundwater wells were installed in 2005. The first year of hydrological monitoring indicated that the only a portion of the site is meeting hydrological criteria under normal conditions; however, the extremely dry preceding conditions in 2006 and 2007 resulted in deeper groundwater tables. For this reason continued monitoring will be needed to see if corrective action is required. Vegetation monitoring and site observations confirm that there is relatively high mortality of planted seedlings and moderate natural colonization of native wetland saplings. The results indicate that much of the project area is failing to meet planted seedling survival objectives while meeting stem density requirements when natural colonizing seedlings are included. The Conservancy will conduct a site assessment in 2008 to determine where corrective action is necessary. This is the third year post construction and mitigation monitoring is scheduled through 2014 with reports submitted to the Corps.

CH-11 Nawney Creek (Fentress)

The purpose of this project is to conduct non-tidal wetland and upland buffer restoration at the Nawney Creek (Fentress) property in Virginia Beach. The funding for this project was approved by the Corps on December 19, 2003. The site was purchased by the Conservancy on December 13, 2003, and long-term protection is achieved through this ownership. This is the third year post construction and mitigation monitoring is scheduled through 2013 with reports submitted to the Corps.

The Nawney Creek (Fentress) property is located on Princess Anne Road in the City of Virginia Beach, Virginia approximately ¼ mile northeast of the community of Back Bay. The Fentress property contains 22.79 acres of converted cropland that directly adjacent to the Nawney Creek (Knight) property (CH-7), which was acquired previously by the Conservancy and this expands the footprint for wetland restoration to approximately 40 acres. The objectives of the Fentress project are to restore 19.0 acres of forested wetland and 3.79 acres of upland buffer. The wetland restoration plan emphasized grading of field crowns and complete filling of interior field ditches in order to prevent the drainage effects that are being observed at the adjacent Knight tract. Historically the majority of this site likely sustained non-riverine wet hardwood forest and Mesic mixed forest and the primary functions to be restored include wildlife habitat and water quality enhancement.

In 2003, the site was rough leveled, a perimeter berm was constructed, and the berm between the two projects was breached in several locations to allow for hydrologic connectivity. In early 2004 the site was planted with 5,500 bare root seedlings of seven wetland hardwood species. Approximately 1,100 seedlings were installed utilizing tree shelters and weed mats to improve survival. Five automatic recording shallow groundwater monitoring wells were installed prior to the 2004 growing season. Annual hydrology results thus far indicate that much of the site is meeting the hydrologic criteria, and in fact, there are large areas of the site where water ponds for a significant duration in most years. During the dry conditions of 2007 a majority of the wells did not meet the requirements for wetland hydrology. The presence of hydrophytic vegetation communities throughout most of the site indicates that wetland hydrology is present in normal precipitation years. Results thus far suggest that approximately three acres in the northwest and southeast portions of the project may not meet the hydrologic criteria under normal circumstances. Vegetation monitoring indicates that while the site is dominated in large part by hydrophytic vegetation, planted seedling survival is low and colonization by other woody species is similarly low. Seedling mortality was presumably caused by long-duration flooding in some areas of the site and intense wetland herb competition. The combination of high planted seedling mortality, low seedling natural recruitment, and invasion by cattail will prevent the site from meeting the proposed vegetation standards for forested wetland restoration. The Conservancy is

exploring options to help meet the forested wetland goals for the site. This is the fourth year post construction and mitigation monitoring is scheduled through 2013 with reports submitted to the Corps.

CB-5/CH-12 Eastern Virginia Phragmites Control
A summary of the project details is included under the Chesapeake Bay Basin.

CH-13 Northwest River (SP Forests LLC)
The purpose of this project is to conduct non-tidal wetland restoration and preservation at the Northwest River (SP Forests, LLC) property in the City of Chesapeake. The funding for this project was approved by the Corps on February 2, 2006. An amended approval letter was issued by Corps on February 22, 2007. The Conservancy proposed to restore drained forest land by plugging a large ditch system and to preserve wetlands on 150 acres located within the 3,800-acre parcel. The site was purchased by the Virginia Department of Game and Inland Fisheries (DGIF) on September 13, 2006, and is managed as the Cavalier Wildlife Management Area.

The Cavalier Wildlife Management Area is approximately 3,800 acres that is located in southern Chesapeake off of Ballahack Road. This parcel is located within the historic range of the Great Dismal Swamp along the Virginia and North Carolina border and is dominated by organic and mineral soil wetlands. The property historically supported extensive stands of Atlantic White Cedar, non-riverine wet hardwood forest, other forested wetland communities and canebrakes. Extensive ditching since the mid-1900's significantly altered the hydrology of the property. DGIF has engaged in large-scale restoration projects on the property and the Northwest River (SP Forests LLC) project is part of that larger management for the 3,800-acre property. The Conservancy proposes to restore 27.5 acres of drained forest and preserve 122.5 acres of forested wetland located in the north-central interior portion of the property. A 10,000 linear foot ditch approximately 15 feet deep and 25 feet wide drains this portion of the property and discharges into Central Ditch which forms the property's western boundary. Central Ditch itself flows to the north and is a major tributary to the upper watershed of the Northwest River, the City of Chesapeake's main drinking water supply. A series of ditch plugs will be installed to restore the drained forest along the southern half of its length. This project is in the planning/permitting phases and has not been constructed.

Lower James River Basin

The Lower James River Basin is comprised of two HUCs (02080208 and 02080206) encompassing the portion of the James River from Richmond east to Norfolk. This basin is located within both the Conservancy's Mid-Atlantic Coastal Plain and the Chesapeake Bay Lowlands Ecoregions and is the focal area of several conservation groups, including the James River Association and the Chesapeake Bay Foundation, as well as efforts of federal, state and local governments. Conservation targets include tidal freshwater and brackish marshes, Chesapeake Bay lowlands estuarine and stream systems, waterfowl and colonial nesting waterbirds, blue crabs, and spawning habitat for striped bass, shad, herring, and yellow perch.

The projects discussed in this section serve as mitigation for permitted impacts within the Lower James River Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue ten mitigation projects in this basin. The Corps has authorized funds for all ten projects. Five projects (LJ-1, CH-9/LJ-4, LJ-6, LJ-7, and LJ-8) provide mitigation for permitted impacts to non-tidal wetlands, one project (LJ-3) provides mitigation for permitted impacts to tidal wetlands, and two projects (LJ-2 and LJ-9) provide mitigation for permitted impacts to streams. One project (LJ-10) provides mitigation for non-tidal and stream impacts. One of the projects (LJ-5) involved the authorization of funds to conduct a real estate appraisal of a property to pursue a potential non-tidal wetland mitigation project. Due to landowner constraints and the results of the appraisal, this project was not pursued.

Due to historical hydrology modifications, one of the non-tidal projects (CH-9/LJ-4) mitigates for impacts within both the Lower James River Basin and the Chowan River Basin. The total funds authorized by the Corps and crediting value for this project have been appropriately divided between the two basins.

The following table provides a summary of projects for which funds were approved in the Lower James River Basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table 10: Approved Project Summary for the Lower James River Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized		
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)
LJ-1	Chickahominy River (Walters)	M	4/6/00	401,105.00	0.00	0.00
LJ-2	Chickahominy River (Cheswick Park)	M	9/10/01	0.00	0.00	15,000.00
LJ-3	VMRC Oyster Reef	M	7/12/02	0.00	50,650.00	0.00
CH-9 / LJ-4	Northwest River (Stephens)	M	7/17/02	625,000.00	0.00	0.00
LJ-5*	Isle of Wight Site	A	5/30/03	2,500.00	0.00	0.00
LJ-6	Chickahominy River (Rogers-Chenault)	M	12/14/04	149,450.00	0.00	0.00
LJ-7	Great Dismal Swamp NW Section (Jacobson)	A	8/3/06	4,000.00	0.00	0.00
		AC, C	12/7/06	1,575,025.00	0.00	0.00
LJ-8	Lower Chickahominy River (Church Point Farm, LLC)	AC, M	12/15/06	49,786.00	0.00	0.00
LJ-9	James River Site	M	12/15/06	0.00	0.00	319,032.00
LJ-10	James River site #2	F,C	8/10/07	21,000.00	0.00	21,000.000
		F,	11/16/07	1,050.00	0.00	1,050.00
			Totals	**2,828,916.00**	**50,650.00**	**356,082.00**
			Grand Total	**3,235,648.00**		

* Project is no longer pursued due to landowner constraints or the results of feasibility studies.

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following tables summarize the status, proposed mitigation activity type and associated acreage, and proposed credit for each non-tidal and tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the Lower James River Basin. In addition, the tables provide the amount of impact acres in the basin, the total mitigation liability in credits, and a measure of the wetland area that is proposed to be replaced through restoration or creation activities in comparison to the amount impacted. The tables do not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 11: Non-Tidal Wetland Project Summary for the Lower James River Basin.

Project Information		NT Wetland (Ac)			Upland (Ac)		Mitigation	Proposed	Additional
Project ID	Status	Rest/Cr	Pres	Enh	Rest	Pres	Acres	Credits	Protected Acreage
LJ-1	M,D,CA	20.00	198.00		23.00	32.78	273.78	42.97	
LJ-4/CH--9	M,CA	61.00	112.10		10.00	2.80	185.90	73.02	
LJ-6	PC		64.70			29.60	94.30	7.95	
LJ-7	LP,P	30.00	23.50	2.50	24.00	4.00	84.00	34.98	
LJ-8	D		383.00			47.30	430.30	40.67	514.00
Sub-totals		**111.00**	**781.30**	**2.50**	**57.00**	**116.48**	**1068.28**	**199.59**	**514.00**

Total Acres of Non-Tidal Impacts	**70.32**
Total Mitigation Liability	**132.69**
Total Proposed Credits	**199.59**
Percent of Wetland Acreage Replacement	**157.8**

LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration/Enhancement/Creation activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Table 12: Tidal Wetland Project Summary for the Lower James River Basin.

Project Information		Salt Marsh	SAV	Oyster	Tidal	Tidal	Mitigation	Proposed
Project #	Status	Rest	Rest	Rest	Enh	Pres	Acres	Credits
LJ-3	PC			0.34			0.34	0.07
Acre Sub-totals		**0.00**	**0.00**	**0.34**	**0.00**	**0.00**	**0.34**	**0.07**
Credit Sub-totals		**0.00**	**0.00**	**0.07**	**0.00**	**0.00**		

Total Acres of Tidal Impacts	**0.43**
Total Mitigation Liability	**0.43**
Total Proposed Credits	**0.07**
Percent of Wetland Acreage Replacement	**0.0**

LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration/Enhancement/Creation activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

As noted in Section II, the Fund has been used to mitigate for 21,338 linear feet of permitted stream impacts in the Lower James River Basin through 2007. The following table summarizes the status, the protected stream length, and a description of the proposed or completed mitigation activities with the associated channel length for each activity for each stream project pursued by

the Conservancy to serve as mitigation for impacts in the Lower James River Basin.

Table 13: Stream Project Summary for the Lower James River Basin.

Project ID	Project Status	Stream Mitigation Area (ac)	Channel Length in Mitigation Area (lf)	Mitigation Activity Description	Additional Protected Acreage
LJ-2	PC	0.04	104	Stabilized a headcut with a series of step pools serving as grade control within an unnamed tributary to Upham Brook. Stream banks were shaped along 104 lf of channel to provide additional floodplain area.	0.00
LJ-9	LP, P	3.20	967	Priority 1 relocation of 967 lf of an unnamed tributary to Chisel Run. The relocated channel buffered by an existing mature forest ranging from 50 to 260 feet along each bank.	0.00
	Totals	**3.24**	**1,071**		**0.00**

ac - acre
lf - linear feet
LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration / Enhancement activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Buffer widths are sufficient to avoid mitigation value conflicts between wetlands and streams ("double-dipping").

Project Summaries

The following section provides a detailed summary of each project located within the Lower James River Basin for which the Corps has authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

LJ-1 Chickahominy River (Walters)

The purpose of this project is to conduct non-tidal wetland restoration and upland buffer restoration and non-tidal wetland and upland buffer preservation at the Chickahominy River (Walters) property near Midlothian. The funding for this project was approved by the Corps on April 6, 2000. The site was purchased by the Conservancy on July 13, 2000, which provides long-term protection of the property.

The Chickahominy River (Walters) property is located off of Creighton Road in Henrico County adjacent to the Chickahominy Swamp. The Chickahominy Swamp system is important for migratory fish, such as striped bass, shad, herring, and yellow perch. The proximity of Richmond to this area has led to increasing development pressures on the system. Development within the watershed has also increased sediment and nutrient loadings to the river. The nearly 274-acre site consisted of a mixture of abandoned river meanders, swampland and six agricultural fields. Based on landscape setting, hydrology, and analysis of vegetation in surrounding areas, the appropriate ecological community groups to target for restoration of the agricultural fields on this site are alluvial floodplain - Coastal Plain/Piedmont bottomland forest and Mesic mixed

hardwood forest. The objectives of this project are to restore 20 acres of forested wetland and restore 23 acres of upland buffer in addition to preservation of 198 acres of wetland and 32.8 acres of upland. A delineation of surface waters and wetlands is pending confirmation.

Wetland and habitat restoration efforts began in late 2001 and were completed in early 2002 and included blocking ditches, contour plowing the agricultural fields to minimize surface water runoff, and planting 13,000 bare root seedlings of various native hydrophytic species. Wetland monitoring was initiated in 2002 with the installation of seven automatic recording shallow groundwater wells and in 2003 with six manually read wells. Hydrological monitoring results for the first five years indicate that the majority of the restoration area of the site is saturated to a depth and duration during the growing season so as to support the wetland hydrology criteria under normal conditions. Considerable natural colonization by volunteer woody species was both noted during field observations and supported by monitoring data. Density of seedlings estimated in vegetation plots exceeds 400 stems per acre with most abundant species including red maple, sweet gum, bald cypress and willow oak. Assessment of herbaceous cover in randomly located subplots indicated a predominance of hydrophytic vegetation. Investigations of soils, hydrology and vegetation in the wetland restoration areas at the property demonstrate that a forested wetland community is becoming established in those areas. However, certain portions of the site are affected by invasive species and in 2003 and 2004 several different woody invasive species (Tree of heaven and Multiflora rose) were located, cut and sprayed with herbicide. This corrective action has largely contained the woody invasive problem, but the presence of Japanese honeysuckle (*Lonicera japonica*) has increased in upland portions of the site and at field edges. The Conservancy proposes to conduct a site assessment in 2008 to determine what corrective action is necessary. This is the sixth year post construction and mitigation monitoring is scheduled through 2011 with reports submitted to the Corps.

LJ-2 Cheswick Park

The purpose of this project is to conduct stream enhancement activities at Cheswick Park in Henrico County. The project was initiated and sponsored by the County of Henrico. The funding for this project was approved by the Corps on September 10, 2001. The property is protected as part of the Henrico County park system. Monitoring was not required for this project, and success standards were not associated with the site activities.

Cheswick Park is a 24 acre recreational county park located near Glenside Avenue in Henrico County. The County of Henrico was interested in conducting enhancement work on a headwater tributary of Upham Brook, a major tributary of the Chickahominy River that is listed as impaired for high fecal coliform counts by the Virginia Department of Environmental Quality (DEQ). The site was identified as a priority enhancement project by Henrico County's watershed management program. Enhancement activities were conducted along 400 linear feet of the tributary, for which 104 linear feet of enhancement work was attributed to the Fund. The additional activities conducted at the site, including additional enhancement work along a second channel, were funded by the County of Henrico and the Virginia Coastal Resources Management Program.

In the fall of 2001, a series of rock step pools were constructed to address the severe headcut moving upstream through the reach. The installation of the grade control structures returned the invert of the stream to the original elevation. The eroding banks were also stabilized through bank shaping and sloping. The Conservancy conducted a site visit with the Corps and DEQ on April 25, 2005, and the group observed that the headcut was stabilized. The group agreed that no additional activities would be conducted at the site. The Conservancy requested this project be closed in 2007 and the Corps officially closed the project on July 27, 2007. All authorized funds

were spent on completion of this project.

LJ-3 VMRC Elizabeth River Oyster Reef

The purpose of this project is to aid in restoration of native oyster populations in the Lower Chesapeake Bay by increasing suitable habitat for the species. The funding for this project was approved by the Corps on July 12, 2002. This project was sponsored by the Virginia Marine Resources Commission (VMRC). VMRC proposed to construct an oyster reef in the Southern Branch of the Elizabeth River near Deep Creek in Chesapeake. The reef is posted and will be maintained as an oyster sanctuary by VMRC.

The reef was constructed in 2002 and is composed of oyster shells to intertidal heights of approximately five feet mean low water. The structure is approximately 300 feet long by 50 feet wide (0.34 acre). Success standards were not associated with the site activities. However, VMRC conducts annual monitoring of several artificial reefs including this project. According to VMRC, the reef experienced high spatsets initially in 2002 that were followed by a very wet year when many oysters on the reefs at Gilmerton and Deep Creek were killed, likely by freshwater. Since that year, the oysters have recovered with currently relatively large and healthy populations. Due to the unique nature of this project the Conservancy proposed crediting at a 10:1 ratio for tidal wetland enhancement for the project. The Conservancy requested this project be closed in 2007. The Corps officially closed this project on July 27, 2007 and assigned 0.07 credits to mitigate for tidal wetland impacts from this site. All authorized funds were spent on completion of this project.

CH-9/LJ-4 Northwest River (Stephens)

The Stephens property (detailed under the Chowan River Basin) is also included as part of Lower James River Basin due to the split drainage.

LJ-5 Isle of Wight Site

The purpose of this project is to conduct a real estate appraisal of this property for a potential non-tidal wetland (vernal ponds) preservation project. The funding for this appraisal was approved by the Corps on May 30, 2003. However, the project was not pursued due to landowner issues and the associated cost of the parcel. The Conservancy requested closure of this site in 2007. The Corps officially closed the project on July 27, 2007. All remaining unspent funds authorized for this project were returned to the general balance of the Fund.

LJ-6 Chickahominy River (Rogers-Chenault)

The purpose of this project is to conduct non-tidal wetland and upland buffer preservation at the Chickahominy River (Rogers-Chenault) property in Henrico County. The funding for this project was approved by the Corps on December 14, 2004. The 94.3-acre property was placed under easement by the Conservancy on December 22, 2004. The Conservancy will hold and annually monitor the conservation easement, which will provide the long-term protection of the property. No additional monitoring is required for this project.

The Chickahominy River (Rogers-Chenault) property is located in Henrico County on the White Oak Swamp near the confluence of the Chickahominy River. The Chickahominy system is important for migratory fish, such as striped bass, shad, herring, and yellow perch. The proximity

of Richmond to this area has led to increasing development pressures on the system. Development within the watershed has also increased sediment and nutrient loadings to the river.

The property is 94.3 acres and consists of a 14.7-acre lake from previous sand mining operations, with the remainder in a mixture of uplands and forested wetlands. The landowner conducted a delineation of surface waters for this site that was confirmed by Corps in 2002 as supporting information for a wetland mitigation feasibility report. Based on the jurisdictional determination, approximately 64.7 acres of wetlands and 29.6 acres of upland buffer are protected at the site. During the proposal process, wetland creation at the site was considered. However, once the site was more thoroughly investigated the Conservancy strongly recommended against pursuing wetland creation at the site due to high costs and the inherent risks of failure. In addition, other projects in the Lower James River Basin have been secured that more adequately address wetland impacts. The Conservancy anticipates official closure of this project in 2008.

LJ-7 Great Dismal Swamp Northwest Section (Jacobson)

The purpose of this project is to conduct non-tidal wetland restoration, enhancement and upland buffer restoration and non-tidal wetland and upland buffer preservation at this property in Chesapeake. The initial funding request for a real estate appraisal was approved by the Corps on August 3, 2006. The second funding request for the project for acquisition and to develop the wetland mitigation plan was approved by the Corps on December 7, 2006. The Conservancy completed the purchase of this site in August 2007, and will maintain it as a preserve while the wetland restoration activities and monitoring are ongoing. Following closure of the wetland restoration project, the Conservancy will likely pursue the sale or transfer of the site with an appropriate conservation easement in place. The proceeds of any sale will be returned to the Fund to facilitate future projects

The property is 84 acres and is located in the western branch area of Chesapeake. The property contains approximately 54 acres of cropland, 22 acres of forested wetlands and several acres of drained forested wetland and upland forest. In the past a ditch system was installed on this site to lower the ground water table to make farming more successful. The natural community type for restoration is Non-riverine wet hardwood forest and Mesic mixed hardwood forest and the primary functions to be restored include wildlife habitat and water quality enhancement. In the Conservancy's proposal to support planning and permitting for the site a credit summary based upon existing site knowledge was included. It should be noted that these proposed figures will likely change as a result of further planning efforts at the site, but should not deviate significantly.

A shallow groundwater table study was conducted at the site during the 2007 growing season. The Conservancy anticipates that the mitigation plan will be completed in 2008. Following the completion of the plan, the Conservancy will submit a third request for funding to the Corps to complete the mitigation activities.

LJ-8 Lower Chickahominy River (Church Point Farm, LLC)

The purpose of this project is to conduct non-tidal wetland and upland buffer preservation at the Church Point Farm property in Charles City County. The initial funding to complete acquisition of the property was approved by the Corps on December 15, 2006. Church Point Farm, LLC, donated a conservation easement on the entire 944 acre property on December 27, 2006. The designated mitigation area includes the wetlands and associated buffer acreage as determined by a site assessment or delineation. The Conservancy will hold and annually monitor the donated easement. No additional monitoring is required for this project.

According to the National Wetlands Inventory (NWI) mapping, the property contains approximately 383 acres of wetlands, including freshwater tidal marshes which harbor occurrences of Parker's pipewort (*Eriocaulon parkeri*), and tropical water-hyssop (*Bacopa innominata*). The property also contains nesting and roosting habitat for the federally-threatened bald eagle (*Haliaeetus leucocephalus*). The reach of the Chickahominy along the property is listed as a Virginia Department of Environmental Quality (DEQ) 303d listed estuary for pH. The forested wetlands contain excellent examples of cypress tupelo swamp forest. According to the NWI mapping, the site contains approximately 383.0 acres of wetlands. A forested buffer extending fifty feet from the banks of the Chickahominy River and all wetlands, swamps and perennial streams on the property will be maintained as "no touch" and this is estimated at 47.3 acres. These two areas comprise the mitigation area (430.30 acres). Additional protected areas estimated at 514.0 acres will have development and extractive activities limited by the conservation easement, although they are not included in the mitigation acres as certain on-going timbering and agriculture activities will be permitted. This site is in close proximity to another Conservancy easement on Diascund Creek, is two miles upstream of Virginia Department of Game and Inland Fisheries (DGIF) 5,000+ acre Chickahominy Wildlife Management Area, and approximately four miles downstream of DGIF's Game Farm Marsh Wildlife Management Area. This project adds significant protected acreage to this portion of the Lower James River. The Conservancy anticipates completing the surface water delineation or assessment and closing this project in 2008.

LJ-9 James River Site

The purpose of this project is to conduct stream restoration activities at a property in James City County (JCC). The County identified this site and approached the Conservancy to complete the restoration activities through the Fund. The funding for this project was approved by the Corps on December 15, 2006. The Conservancy proposed to conduct Priority 1 relocation along approximately 967 linear feet of an unnamed tributary to Chisel Run. The site will be protected and managed through a Corps approved Memorandum of Agreement (MOA) between JCC and the Commonwealth of Virginia. The MOA is currently under development.

The site is located in close proximity to several local parks, as well as a research area (William and Mary College Woods). The site is also situated at the outside edge of a state identified conservation area. The Powhatan Creek natural area has been identified through the Virginia Department of Conservation and Recreation (DCR) screening process as a B2 level, "very high significance", conservation area. The high biodiversity associated with this area prioritizes this site for protection. Three DCR Natural Heritage element occurrences are within a mile of the site, and an additional twelve occurrences are within two miles of the site.

The County had identified this 3.20 acre project as part of their Powhatan Creek Watershed Management Plan. One of the goals of the plan is to "restore the physical integrity of degraded headwater streams where possible". This stream segment is identified within the plan as a good candidate for stream restoration. The reach proposed for restoration is currently incised due to a headcut that is moving upstream through the project site. The stream is not able to access the floodplain during bankfull events, leading to additional incision and bank erosion. If the restoration project is not completed, the stream will likely continue to degrade. The mitigation activities include the Priority 1 relocation of approximately 967 linear feet of channel. The relocated channel will be buffered by a mature riparian forest ranging from approximately 50 to 260 feet along each bank.

The Corps 404 and DEQ 401 permits have already been issued for the site activities. Once the MOA has been finalized, the Conservancy will finalize the planning process to implement this project.

LJ-10 James River site #2

The purpose of this project is to conduct a feasibility study of non-tidal wetland and stream mitigation activities on a site along the James River in Charles City County. The initial funding to complete the feasibility study was approved by the Corps on August 10, 2007 and subsequently on November 16, 2007. The Conservancy is assessing the feasibility of removing a dam along a large lake and restoring stream channel and wetland systems within the existing impoundment.

The feasibility study will explore the possibility of removing the dam and the restoration of the natural stream channel and associated wetland and upland habitat. The study evaluates the options for dam removal and subsequent restoration of the former impoundment to increase the tidal influence and development of additional tidal marsh within the existing impoundment, while restoring the stream to the natural conditions.

Due to the construction of the dam, the impoundment flooded approximately 70 acres of land including tidal and non-tidal freshwater wetlands. The flooding also altered approximately 1.5 miles of a creek. Based upon existing information, it is believed that this area historically contained a freshwater creek supporting a bottomland hardwood swamp forest a significant portion of which was subjected to lunar tides. Tidal creek and freshwater tidal swamp are considered critical habitats in the Lower James River ecosystem.

Based upon information gathered from site visits and generated on GIS, there is the possibility of restoring significant length of stream channel (possibly over 8,000 linear feet) depending upon the amount of meander that is appropriate for the stream type. Portions of the area near the James River will be subject to freshwater tidal influence. Preliminary information suggests that the majority of the lake bottom supported wetlands of various types including tidal and non-tidal, forested and emergent. Freshwater tidal wetland zonation will be determined largely by current elevation of the lake substrate relative to the influence of the daily lunar tidal cycle at this location. Additional wetlands may exist or be created in areas above the influence of daily lunar tides that receive adequate hydrology.

Following completion of the feasibility study, the Conservancy anticipates requesting funding to complete the restoration of this site in 2008.

Middle James River Basin

The Middle James River Basin is comprised of four HUCs (02080203, 02080204, 02080205 and 02080207) encompassing the portion of the James River from the Blue Ridge Parkway east to Richmond. This basin is located within the Conservancy's Piedmont Ecoregion. Conservation targets include small, Piedmont streams and tributaries, James River spinymussel, isolated wetlands, and working and old growth forests.

The projects discussed in this section serve as mitigation for permitted impacts within the Middle James River Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue nine mitigation projects in this basin. The Corps has authorized funds for eight of these projects. Two projects (MJ-1 and MJ-3) provide mitigation for both permitted impacts to non-tidal wetlands and streams. Five projects (MJ-4, MJ-5, MJ-6, MJ-7, and MJ-8) provide mitigation for stream impacts. One project (MJ-2) involved the authorization of funds to conduct a real estate appraisal of the property to pursue a potential stream mitigation project. Due to landowner constraints and the findings of the appraisal, this project was not pursued. One project was proposed in 2006 and denied by the agencies based on constraints required by the landowner.

The following table provides a summary of projects for which funds were approved in the Middle James River Basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table 14: Approved Project Summary for the Middle James River Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized		
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)
MJ-1	Rivanna River (Lamb)	M	4/10/01	366,450.00	0.00	0.00
		M	10/20/03	0.00	0.00	385,000.00
		M	11/19/07	0.00	0.00	336,550.00
MJ-2*	Rivanna Watershed Site	A	9/2/05	0.00	0.00	1,500.00
MJ-3	Beaumont (Sisters of the Blessed Sacrament)	A	4/23/06	3,750.00	0.00	3,750.00
		M	12/15/06	110,500.00	0.00	110,500.00
		BS	12/19/06	12,500.00	0.00	12,500.00
MJ-4	Southern Shenandoah (Bennett)	M	8/10/07	0.00	0.00	12,608.00
MJ-5	Meadow Creek site #1	M	11/16/07	0.00	0.00	9,994.00
MJ-6	Meadow Creek site #2	M	11/16/07	0.00	0.00	1,341,562.00
MJ-7	Meadow Creek site #3	M	11/16/07	0.00	0.00	1,215,737.00
MJ-8	Meadow Creek site #4	M	11/16/07	0.00	0.00	625,622.00
			Totals	**493,200.00**	**0.00**	**4,055,323.00**
			Grand Total	**4,548,523.00**		

* Project is no longer pursued due to landowner constraints or the results of feasibility studies.

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following table summarizes the status, proposed mitigation activity type and associated acreage, and proposed credit for each non-tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the Middle James River Basin. In addition the table provides the amount of impact acres in the basin, the total mitigation liability in credits, and a measure of the wetland area that is proposed to be replaced through restoration or creation activities in comparison to the amount impacted. The table does not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 15: Non-Tidal Wetland Project Summary for the Middle James River Basin.

Project Information		NT Wetland (Ac)			Upland (Ac)		Mitigation	Proposed	Additional
Project ID	Status	Rest/Cr	Pres	Enh	Rest	Pres	Acres	Credits	Protected Acreage
*MJ-1	M	20.00			26.00		46.00	21.73	44.32
*MJ-3	D		36.00			12.50	48.50	4.23	469.00
Sub-totals		**20.00**	**36.00**	**0.00**	**26.00**	**12.50**	**94.50**	**25.96**	**513.32**

Total Acres of Non-Tidal Impacts	**20.05**
Total Mitigation Liability	**36.99**
Total Proposed Credits	**25.96**
Percent of Wetland Acreage Replacement	**99.7**

LP - Pending finalization of land protection	I - Restoration/Enhancement/Creation activities in progress
P - Planning / permitting	M - Mitigation monitoring
D - Pending delineation / assessment	CA - Corrective actions necessary
	PC - Pending project closure

* Project includes stream or tidal wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the

As noted in Section II, the Fund has been used to mitigate for 28.735 linear feet of permitted stream impacts in the Middle James River Basin through 2007. The following table summarizes the status, the protected stream length, and a description of the proposed or completed mitigation activities with the associated channel length for each activity for each stream project pursued by the Conservancy to serve as mitigation for impacts in the Middle James River Basin. This table does not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 16: Stream Project Summary for the Middle James River Basin.

Project ID	Project Status	Stream Mitigation Area (ac)	Channel Length in Mitigation Area (lf)	Mitigation Activity Description	Additional Protected Acreage
MJ-1*	M, CA	64.18	9,239	Priority 1 relocation of 1,866 lf of an unnamed tributary and bank shaping to provide floodplain area along 1,373 lf of a second unnamed tributary to the North Fork of the Rivanna River. Each bank of both tributaries planted with a 200 foot wide wooded buffer. Riparian buffer planting (250 feet wide) along a total of 6,000 lf of the North Fork (right bank) and South Fork (left bank) of the Rivanna River.	Reported under the wetlands summary
MJ-3*	D	482.50	37,820	Riparian buffer preservation of 8,280 lf along the right bank of the James River with an existing mature wooded buffer ranging from 100 to 300 feet. Stream system preservation of 12,200 lf of Deep Creek, with an existing mature wooded buffer 300 feet wide along each bank (except for a 50 foot wide buffer along the left bank for 2,500 lf). Stream system preservation of 9,420 lf of headwater tributaries to the James River with an existing mature wooded buffer of 200 feet along each bank. Stream system preservation of 7,920 lf of a headwater tributary to the James River with an existing mature wooded buffer of 300 feet along each bank.	Reported under the wetlands summary
MJ-4	D	23.88	5,700	Riparian buffer preservation along 1,000 lf of the left bank of the Moorman's River with an existing mature wooded buffer width of 200 feet. Stream system preservation along both banks of 2,800 lf of Slate Branch with an existing mature wooded buffer width of 200 feet. Riparian buffer preservation along 1,000 lf of the right bank with an existing mature wooded buffer width of 200 feet. Stream system preservation along both banks of 900 lf of two unnamed tributaries to Slate Branch with an existing mature wooded buffer width of 200 feet.	58.12
MJ-5	P,I	12.5	N/A	Provides mature riparian buffer preservation adjacent to the MJ-7 project site.	
MJ-6	P,I	28.1	3,185	Stream channel restoration and bank stabilization along 3,185 lf of Meadow Creek.	
MJ-7	P,I	17.0	2,497	Stream channel restoration, bank stabilization and riparian buffer establishment along 2,497 lf of Meadow Creek.	
MJ-8	P,I	5.0	1,270	Stream channel restoration, bank stabilization and riparian buffer establishment along 1, 270 lf of Meadow Creek.	
	Totals	**632.48**	**59,711**		58.12

ac - acre
lf - linear feet
LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration / Enhancement activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Buffer widths are sufficient to avoid mitigation value conflicts between wetlands and streams ("double-dipping").

Project Summaries
The following section provides a detailed summary of each project located within the Middle James River Basin for which the Corps has authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

MJ-1 Rivanna River (Lamb)
The purpose of this project is to conduct non-tidal wetland and upland buffer restoration, stream restoration and enhancement, and riparian buffer planting activities at the Lamb property (also known as the Forks of the Rivanna project) in Albemarle County. The funding for the site acquisition and wetland activities was approved by the Corps on April 10, 2001, and the funding for the stream activities was approved by the Corps on October 20, 2003. The Conservancy proposed to restore approximately 20 acres of ditched and tile-drained non-tidal wetlands with an upland buffer and restore/enhance approximately 3,000 linear feet of severely incised stream channel. The Conservancy also proposed planting a wooded buffer along one bank of both the North and South Forks of the Rivanna River. The site was purchased by the Conservancy on October 24, 2001. The Conservancy sold the property to a conservation buyer, with a conservation easement in place, on November 17, 2006. The proceeds from the land sale were returned to the Fund to facilitate future mitigation projects.

This 154.5-acre site is located at the confluence of the North and the South Forks of the Rivanna River. Prior to the Conservancy's involvement, the majority of the tract had been converted to row crop agriculture through deforestation, installation of a tile drain system, and channelization of two streams on the property. Through the Conservancy's ecoregional planning, the Lamb site was identified as important to the protection of the main stem of the Rivanna River, including both overall water quality and the protection of the James River spinymussel. The mitigation area for this project is 110.18 acres which includes the "no-touch" stream and wetland areas and associated buffers. The remaining 44.32 acres are subject to activities (such as agriculture and a single building envelope) that exclude its appropriateness as compensatory mitigation, but can be viewed as additional protected acreage.

Wetland Summary
A depressional area located in the center of the fields was historically ditched and tile drained to convert it to agriculture. Based on landscape setting, hydrology, and analyses of vegetation in surrounding areas, the appropriate ecological community group to target for restoration of the agricultural fields on the site consists of Piedmont/Mountain Bottomland Forests. The objective of the wetland project was to restore a mixture of emergent and forested wetlands (20 acres) and an upland buffer (26 acres).

The tile drain system had a primary outlet that was blocked in 2002 to determine the effects on hydrology. Because the project relied upon ditch plugging and elimination of the drainage tile system rather than large-scale grading, the site was planted in 2003 prior to construction. The tile drains were crushed and the ditches were plugged in 2005 concurrent with the stream restoration project. Three automatic-reading shallow groundwater level monitoring wells and five manual reading shallow groundwater wells were installed in the agricultural fields in March 2002. In addition, five manual reading shallow groundwater wells and three piezometers were installed in 2003 and 2004 and monitored weekly for the beginning of the growing season. Results from the hydrology wells indicate that the majority of the area monitored meets the Corps hydrology requirements; however, water depth and duration were greater than predicted in the growing season following planting and this resulted in high seedling mortality in the area. As a result a

freshwater marsh wetland has developed within much of the restoration area with inadequate woody seedling colonization. This portion of the site has been utilized by a wide variety of waterfowl, snakes and mammals as have been observed during site visits, thus, the site is performing important wildlife habitat functions. The invasive species Johnson grass *(Sorghum halepense)* gained dominance in portions of the upland buffer for the wetland restoration area as well as in other much larger portions of the site and a mechcanical/chemical control effort began in 2006 and continued through 2007. In 2008 Johnson grass dominance will be assessed to determine whether corrective actions may occur to accomplish project goals. Once the Johnson Grass has been managed, the Conservancy will propose to re-plant saplings in sections of the wetland and the buffer to meet success criteria for the site.

Stream Summary

In the summer of 2005, the Conservancy conducted stream restoration and enhancement activities at the site including the Priority 1 relocation of an unnamed tributary to the North Fork of the Rivanna River. The relocation of the tributary involved the excavation of 1,866 linear feet of a new stable channel in the floodplain to the west of the existing degraded channel. The new channel was stabilized with instream rock and log structures and rootwads along the banks. A series of step-pool structures were installed at the downstream section of the channel to meet the elevation of a second tributary at the site. The banks of this highly incised second tributary were graded and shaped along 1,373 linear feet of channel to create a new floodplain within the channel. Instream structures were also installed within this reach to provide channel stability. The restoration activities were completed in September 2005. The channel banks and benches along both tributaries were planted with live stakes in March 2006. Minor bank repairs and minor repairs to one cross vane to redirect the flow over the invert were completed in the spring of 2007.

Stream monitoring events are scheduled for monitoring years 1, 2, 3, 5, 7, and 10 with reports submitted to the Corps. The second year geomorphologic monitoring event was completed in 2007. The results of the monitoring indicted that the system is stable and has not departed significantly from the as-built conditions.

In the spring of 2003, the Conservancy planted a 250 foot wide wooded buffer along the right bank of the North Fork of the Rivanna River and along the left bank of the South Fork of the Rivanna River. The total linear footage of riparian buffer planting along the rivers was 6,000 linear feet. The survival of these plantings was greatly impacted by the presence of Johnson Grass *(Sorghum halepense),* which is currently dominating much of the upland portions of the site. The Conservancy initiated an eradication program for the Johnson grass in the spring of 2006 and will continue until the species is managed. Once the Johnson grass has been managed, the Conservancy will plant 200 foot wide buffers along each bank of the 3,239 linear feet of restored or enhanced channels and replant the buffer areas along the North and South forks of the Rivanna River. In addition, several hundred linear feet of the tributary upstream of the Priority 1 relocation will be preserved, pending the finalization of the project. This section of the tributary is located within a mature hardwood forest.

MJ-2 Rivanna Watershed Site

The purpose of this project is to conduct a real estate appraisal of this property for potential riparian buffer preservation. The funding for this appraisal was approved by the Corps on September 2, 2005. However, the project was not pursued due to landowner issues and the associated cost of the parcel. The Conservancy requested to close this project in 2007. The Corps officially closed the project on July 27, 2007.

MJ-3 Beaumont (Sisters of the Blessed Sacrament)
The purpose of this project is to conduct open water/wetland and associated upland buffer preservation and stream and the associated upland riparian buffer preservation at the Beaumont property (also known as Belmead) located along the James River in Powhatan County. The initial funding to complete a real estate appraisal of this property was approved by the Corps on April 23, 2006. Two additional funding requests to acquire the site and complete a boundary survey were approved by the Corps on December 15 and December 19, 2006, respectively. The Conservancy purchased a conservation easement on December 28, 2006, on approximately 1,000 acres at the site; however, the mitigation area is 531 acres, as certain activities such as agriculture and silviculture will be allowed outside the designated "no-touch" buffers surrounding the open water, streams, and wetlands. The easement will be co-held by the Virginia Outdoors Foundation and the James River Association, who will be responsible for enforcing its terms. No additional monitoring is required for this project.

The tract is located within two miles of the 4,500-acre Powhatan Wildlife Management Area, and will add to the protected forested and riparian habitat in the area. In addition, the Conservancy identified this site as an important conservation target due to the location within the Beaumont forest matrix block which covers approximately 50,847 acres and constitutes one of fifteen high-quality, relatively unfragmented forests remaining in the Piedmont of Virginia. The Virginia Department of Conservation and Recreation (DCR) Natural Heritage Program files also document an American Bald Eagle nest site on the property and several rare mussel species have been documented in the James River adjacent to and upstream from the property.

This project will preserve an estimated 37,820 linear feet of stream channel (including sections of the James River, Deep Creek, and several headwater tributaries) with a protected mature forested upland riparian buffer ranging from 100 to 300 feet along the majority of the banks. Of this linear footage, both banks of approximately 29,540 linear feet of channel are located on the property and will be fully protected. The project will also preserve an estimated 48.5 acres of open water/wetlands and additional forested upland buffers. The Conservancy anticipates completing the surface water delineation or assessment in 2008 and officially closing this project.

MJ-4 Southern Shenandoah (Bennett)
The purpose of this project is to conduct open stream system preservation and associated upland riparian buffer preservation on the Moorman's River and its tributary, Slate Branch (and associated unnamed tributaries) at the Bennett property in Albemarle County. The initial funding for this project was approved by the Corp on August 10, 2007. The easement was completed and donated to the Conservancy in 2007.

The property is bordered on the south by the Moorman's River, which has been designated a State and County Scenic River. The property also contains a significant portion of Slate Branch (and two unnamed tributaries), a tributary of the Moorman's River. All stream channels are in stable condition and require no restoration or enhancement activities. The project parcel and surrounding properties are mature forests with virtually no disturbances. The majority of the Slate Branch watershed is included in the parcel, with minimal development potential upstream due to the surrounding property's slope and ownership.

Slate Branch and the unnamed tributaries are located within a highly confined valley with very steep slopes along the majority of the length of the channel. The system is very stable and would likely be classified as an A and B channel system, dominated by step pools and bedrock grade

control. The streams provide significant habitat diversity.

Mitigation activities at the site include the preservation of approximately 1,000 linear feet of the left bank of the Moorman's River, 2,800 linear feet of both banks of Slate Branch, 1,000 linear feet of the right bank of Slate Branch, and 900 linear feet of both banks of two unnamed tributaries to Slate Branch. All banks are buffered with an existing mature wooded buffer width of 200 feet. For reporting purposes, the proposed no-touch riparian buffer is approximately 23.88 acres, calculated as the product of estimated stream length by the width of 200 feet (with the exception of the overlap areas along the unnamed tributaries). Although the entire 82 acre parcel is protected by the easement, for the purposes of reporting, the additional 58.12 acres is considered "Additional Protected Acreage".

Following completion of a surface water delineation or assessment, the Conservancy anticipates closing this project in 2008.

MJ-5 Meadow Creek site #1

The purpose of the MJ-5, MJ-6, MJ-7 and MJ-8 projects to conduct stream restoration activities on four adjacent or nearby sites along Meadow Creek in the City of Charlottesville. Each site will be placed under easement or ownership by the Conservancy to secure the long term protection of each property. The initial funding for these sites was approved by the Corps on November 16, 2007.

These properties lie within the Rivanna River watershed which is identified as one of the five best examples of high quality Piedmont river systems remaining in Virginia. The Rivanna Watershed Conservation Action Plan has identified increased sedimentation, due in part to streambank erosion and the lack of forested buffers in riparian areas, as the greatest current threat to streams and rivers in the watershed. To address this threat, the Conservancy is actively seeking stream restoration projects in the Rivanna watershed, and approached the City of Charlottesville to inquire about opportunities for stream restoration that the City had identified as part of their Water Quality Management Study. This study identified sediment as a water quality concern and stated that "streambank erosion is likely the most significant source of sediment in Meadow Creek and its tributaries." One of the recommendations of the study was to evaluate stream stabilization and restoration projects in the Meadow Creek watershed. Albemarle County also conducted a stream assessment and identified the need for restoration of Meadow Creek adjacent to these properties.

Meadow Creek appears to have been relocated and channelized. In fact, the Rivanna Sewer and Water Authority (RSWA) provided a map from the 1950s showing the location of the channel located southeast of the current location, through the center of the valley. The original location of the channel was likely through the current location of the existing wetlands located along the southeastern property boundary.

The reach is incised with high banks with severe areas of bank erosion. The incision is likely contributed primarily to the urban nature of the area and past channel alterations. The stream is not able to access the floodplain during bankfull events, leading to additional incision and bank erosion. There are areas of significant aggradation and degradation within the channel, particularly moving downstream, contributing to a lack of appropriate pool-riffle complexes and detrital storage crucial for aquatic species. The stream has downcut to bedrock shelves in several areas, particularly in the upstream section.

The existing riparian buffer consists primarily of forest (some areas sparsely wooded) with areas of shrubs and grasses, and forested and scrub shrub wetlands. This existing buffer extends along both banks of the creek to the property boundary. Many of the trees located immediately along the banks are in danger of falling into the channel. There are many areas within the buffer where the forest can be enhanced with additional plantings.

The Conservancy plans to conduct stream restoration, enhancement, and riparian buffer enhancement and preservation along 6,952 lf of Meadow Creek. Once the protection methods are completed, the Conservancy will finalize the restoration plans and permitting details for these sites, all of which are expected to occur in 2008.

MJ-6 Meadow Creek site #2
Project description is detailed above at MJ-5.

MJ-7 Meadow Creek site #3
Project description is detailed above at MJ-5.

MJ-8 Meadow Creek site #4
Project description is detailed above at MJ-5.

Upper James River Basin

The Upper James River Basin is comprised of two HUCs (02080201 and 02080202) encompassing the portion of the James River from the West Virginia border east to the Blue Ridge Parkway. This basin is located within the Conservancy's Central Appalachian Ecoregion. Conservation targets include Central Appalachian river systems (with particular interest to the Cowpasture River and the associated tributaries), montane, non-alluvial wetlands, cave invertebrate communities, bats, alluvial forests and grasslands, pine-oak-heath woodlands, and Central Appalachian mixed hardwood forests.

The projects discussed in this section serve as mitigation for permitted impacts within the Upper James River Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue three mitigation projects in this basin. The Corps has authorized funds for all projects. One project (UJ-1) provides funds to complete restoration activities of non-tidal wetlands, and the second project (UJ-2) provides mitigation for permitted impacts to streams. The second project, UJ-2, was withdrawn in 2007 due to landowner constraints and is no longer considered as a mitigation opportunity. A third project, SH-3/UJ-3, is on a watershed divide and compensates for impacts within both the Upper James River and the Shenandoah River basins. All funding for SH-3/UJ-3 came entirely from the Shenandoah River Basin.

The following table provides a summary of projects for which funds were approved in the Upper James River Basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table 17: Approved Project Summary for the Upper James River Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized			Closed Projects
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)	Funds Returned Upon Closure ($)
UJ-1	Warm Springs Mountain / Cowpasture River (Phillips)	AC, F	9/1/06	22,679.00	0.00	0.00	
		M	2/22/07	105,320.00	0.00	0.00	
UJ-2	Warm Springs Mountain / Cowpasture River Site	M	12/7/06	0.00	0.00	149,009.00	149,009.00
SH-3 / UJ-3	Laure Fork (Rifle Ridge Farm, LLC)	M	11/19/07	0.00	0.00	0.00	
			Totals	**127,999.00**	**0.00**	**149,009.00**	
			Grand Total	**277,008.00**			

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following table summarizes the status, proposed mitigation activity type and associated acreage, and proposed credit for each non-tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the Upper James River Basin. In addition the table provides the amount of impact acres in the basin, the total mitigation liability in credits, and a measure of the wetland area that is proposed to be replaced through restoration or creation activities in comparison to the amount impacted. The table does not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 18: Non-Tidal Wetland Project Summary for the Upper James River Basin.

Project Information		NT Wetland (Ac)			Upland (Ac)		Mitigation	Proposed	Additional
Project ID	Status	Rest/Cr	Pres	Enh	Rest	Pres	Acres	Credits	Protected Acreage
UJ-1	M	3.09	0.05	1.78	3.91	5.16	13.99	4.21	
Sub-totals		**3.09**	**0.00**	**0.00**	**3.91**	**5.16**	**13.99**	**4.21**	**0.00**

Total Acres of Non-Tidal Impacts	**3.10**
Total Mitigation Liability	**5.08**
Total Proposed Credits	**4.21**
Percent of Wetland Acreage Replacement	**99.8**

LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration/Enhancement/Creation activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes stream or tidal wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program

As noted in Section II, the Fund has not been used to mitigate for permitted stream impacts in the Upper James River Basin. The following table summarizes the status, the protected stream length, and a description of the proposed or completed mitigation activities with the associated channel length for each activity for the stream project pursued by the Conservancy to serve as mitigation for future impacts in the Upper James River Basin.

Table 19: Stream Project Summary for the Upper James River Basin.

Project ID	Project Status	Stream Mitigation Area (ac)	Channel Length in Mitigation Area (lf)	Mitigation Activity Description	Additional Protected Acreage
SH-3/ UJ-3	D	104.4	7,445	Riparian buffer preservation along 13,144 lf of the both banks of Laurel Fork, and along left bank of 3,847 lf of Collins Run, and along both banks of 4,563 lf of Buck Creek. Stream system preservation along both banks of 8397 lf of three unnamed tributaries to Laurel Fork; both banks of 2255 lf of an unnamed tributary to Laurel Fork; both banks of 6108 lf of Blights Run; and both banks of 3,046 lf of two unnamed tributaries to Buck Creek.	reported under SH-3
	Totals	**104.4**	**7,445**		

ac - acre
lf - linear feet
LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration / Enhancement activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Buffer widths are sufficient to avoid mitigation value conflicts between wetlands and streams ("double-dipping").

Project Summaries

The following section provides a detailed summary of each project located within the Upper James River Basin for which the Corps authorized funds through 2007. The summaries include a description of the mitigation activities; partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

UJ-1 Warm Springs Mountain/Cowpasture River (Phillips)

The purpose of this project is to conduct a feasibility study to address the potential for non-tidal wetland restoration and creation and upland buffer restoration at the Phillips property in Bath County. The initial funding request to complete a feasibility study for the site was approved by the Corps on September 1, 2006. A second funding request was approved by the Corps on February 22, 2007 for the restoration activities. The project area is protected by a conservation easement, signed in 2007, which will be held and enforced by the Conservancy. Long-term protection will be achieved in accordance with the conservation easement.

This project is located within the Cowpasture River watershed; considered by many experts to be the healthiest watershed in Virginia. The river comprises an exemplary aquatic system including warm water fishes, mussels, crayfish, aquatic insects, and native brook trout in cold water tributaries. According to the Virginia Department of Conservation and Recreation (DCR) records, there are documented occurrences of Roughhead shiner (*Notropis semperasper*) and yellow lance *(Elliptio lanceoleta)* fish, as well as Green floater (*Lasmigona subviridis*) mussels at

the down stream end of the property. Fifty-five percent of the land in this priority conservation area is in public ownership.

The site is located within the ridge and valley physiographic province and is situated on a north facing slope draining to Stuart Run. Hydrologic features in the form of seeps and de-concentrated overland flow begin at the slope break and form emergent wetland areas where cattle have roughened the surface soils. The northern third of the site begins at the top of an escarpment that is occupied by an acid oak-hickory forest community and the floodplain supports a piedmont/mountain alluvial forest on the western half and mixed pasture grasses on the eastern half. In addition, the eastern half of the floodplain contains several mafic seep communities at the toe of the escarpment.

A review of the general site conditions indicates significant anthropogenic disturbances in the lower slope areas of the site. The central portion of the site has been converted from forest to pasture over the past 100 years. The most recent instance of these activities occurred within the last three years and converted approximately five acres of forest in the upper third of the site to pasture. The remaining pasture areas were cleared more than 20 years ago. Due to the shallow nature of the topsoil on the site, removal of the root mat during these disturbances would have likely destroyed evidence of a non-alluvial wetlands relying on perched water, except for the wettest areas.

Given the existing conditions, constraints, historical community distribution, and functional needs of the region, a restoration plan was formulated that would establish a self sustaining ecosystem. The design of the site will focus on developing or enhancing the site's features to attain the greatest functional benefit. The community types proposed to be restored on site includes montane woodland seep, montane depression wetland, upland depression swamp, piedmont/mountain alluvial forest and acidic oak hickory forest. These communities include both wetland and non-wetland communities. The montane depression wetland will occupy the central portion of the site and be supported by montane woodland seeps and surface runoff. On the periphery of the site an upland depression swamp will be created along the western edge of the site using surface runoff as the primary hydrologic input, and will drain/transition into the montane depression wetland to the east. The upland areas along the eastern boundary of the site will be returned to an acid oak-hickory forest. The floodplain of Stuart Run and the southern third of the site is currently forested and will not be modified, except that the large montane woodland seep along the eastern edge of the floodplain escarpment will be restored.

The Conservancy is in the permitting process now and anticipates the restoration work to be completed in early 2008.

UJ-2 Warm Springs Mountain/Cowpasture River Site

The purpose of this project is to conduct stream and the associated upland riparian buffer preservation at this property in Bath County. The funding to complete this project was approved by the Corps on December 7, 2006. The Conservancy plans to purchase and hold a conservation easement on the 135 acre parcel, which will, in part, protect two forested streams that flow from the George Washington National Forest, across the property, and into the Cowpasture River. However, the mitigation area is approximately 12 acres, as certain activities such as selective forest management practices in accordance with a Conservancy approved plan will be allowed outside the designated 100 foot "no-touch" buffers surrounding the streams.

This project was officially withdrawn and closed in 2007 due to landowner constraints. No funds

were spent and all authorized funds were returned to the general balance of the Fund.

SH-3 / UJ-3 Laurel Fork (Rifle Ridge Farm, LLC)
This project mitigates for stream impacts in both the Shenandoah and Upper James River Basins. Projects details are given under the SH-3 description.

New River Basin

The New River Basin is comprised of two HUCs (05050001 and 05050002). This basin is located within the Conservancy's Central Appalachian Ecoregion. Conservation targets include small, Central Appalachian streams and tributaries and general locations encompassing habitat for known Virginia Department of Conservation and Recreation Natural Heritage elements.

The Fund has been used to mitigate for 0.68 acres of non-tidal wetland impacts and 3,078 linear feet of stream impacts in the New River Basin. Through 2007, the Conservancy has not requested funds to pursue any mitigation project in this basin.

Potomac River Basin

The Potomac River Basin is comprised of three HUCs (02070008, 02070010, and 02070011) encompassing the Lower Potomac east of the Blue Ridge to the Bay. This basin is located within the Conservancy's Piedmont Ecoregion. Conservation targets include small Piedmont streams and tributaries, sportfish and nongame fish populations, and estuarine and riverine systems.

The projects discussed in this section serve as mitigation for permitted impacts within the Potomac River Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue five mitigation projects in this basin. The Corps has authorized funds for all five projects. Two projects (PO-1 and PO-5) provide mitigation for permitted impacts to both non-tidal wetlands and streams, and two of the projects (PO-2 and PO-3) provide mitigation for permitted impacts to streams. The fourth project (PO-4) involves the authorization of funds to conduct a real estate appraisal of a property to pursue a potential stream and wetland mitigation project.

The following table provides a summary of projects for which funds were approved in the Potomac River Basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table20: Approved Project Summary for the Potomac River Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized		
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)
PO-1	Caledon (Nash)	M	5/23/01	175,000.00	0.00	0.00
		M	12/19/03	0.00	0.00	60,800.00
PO-2	Dogue Creek Site	M	10/6/06	0.00	0.00	1,222,000.00
PO-3	Goose Creek Site	M	12/7/06	0.00	0.00	1,406,703.00
PO-4	Goose Creek Site	A	10/11/06	3,250.00	0.00	3,250.00
PO-5	Goose Creek (Bluewildlife, LLC)	M	7/27/07	256,819.50	0.00	1,644,751.50
			Totals	**435,819.50**	**0.00**	**4,350,254.50**
			Grand Total	**4,786,074.00**		

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following table summarizes the status, proposed mitigation activity type and associated acreage, and proposed credit for each non-tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the Potomac River Basin. In addition, the table provides the amount of impact acres in the basin, the total mitigation liability in credits, and a measure of the wetland area that is proposed to be replaced through restoration or creation activities in comparison to the amount impacted. The table does not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 21: Non-Tidal Wetland Project Summary for the Potomac River Basin.

Project Information		NT Wetland (Ac)			Upland (Ac)		Mitigation	Proposed
Project ID	**Status**	**Rest/Cr**	**Pres**	**Enh**	**Rest**	**Pres**	**Acres**	**Credits**
***PO-1**	M,D,CA	10.00	50.00		26.38	66.38	152.76	20.08
***PO-5**	P,I	5.00		1.50			6.50	5.50
Sub-totals		**15.00**	**50.00**	**1.5**	**26.38**	**66.38**	**159.26**	**25.58**

Total Acres of Non-Tidal Impacts	**7.09**
Total Mitigation Liability	**10.98**
Total Proposed Credits	**25.58**
Percent of Wetland Acreage Replacement	**211.6**

LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration/Enhancement/Creation activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes stream or tidal wetland mitigation.

As noted in Section II, the Fund has been used to mitigate for 72,367 linear feet of permitted stream impacts in the Potomac River Basin through 2007. The following table summarizes the status, the protected stream length, and a description of the proposed or completed mitigation activities with the associated channel length for each activity for each stream project pursued by the Conservancy to serve as mitigation for impacts in the Potomac River Basin. The table does not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 22: Stream Project Summary for the Potomac River Basin.

Project ID	Project Status	Stream Mitigation Area (ac)	Channel Length in Mitigation Area (lf)	Mitigation Activity Description	Additional Protected Acreage
PO-1*	M	7.24	1,600	Priority 1 relocation of 300 lf and Priority 2 restoration of 650 lf of an unnamed tributary to Chotank Creek with an existing mature wooded buffer ranging from 50 to over 200 feet along each bank. Livestock exclusion fencing installed to protect 1,600 lf of stream channel and a small pond.	0.00
PO-2	LP, D, P	5.30	2,500	Priority 1 relocation of 2,300 lf and Priority 2 restoration of 200 lf along two unnamed tributaries to Dogue Creek. The channels buffered by an existing mature forest (with several small areas of buffer enhancement) ranging from 50 to 150 feet along each bank.	0.00
PO-3	LP, D, P	28.00	6,877	Channel restoration and enhancement activities along 6,877 lf of several unnamed tributaries to Crooked Run. In addition to channel work, riparian buffer planting 100 feet wide along 5,182 lf of both banks, except for an 80 foot wide buffer along the right bank for 1,118 lf and a 20 foot wide buffer along the left bank for 146 lf. Riparian buffer planting 80 feet wide along a single bank for 1,695 lf (other bank is off property). Livestock exclusion fencing installed to protect 6,877 lf of channel.	0.00
PO-5	P,I	35.5	8,050	Channel restoration and enhancement activities along 5,000 lf of Bolling Branch and 2,200 lf along two unnamed tributaries. In addition, riparian buffer enhancement along 750 lf of Bolling Branch and stream and buffer preservation along 100 lf of an unnamed tribuatary.	77
	Totals	**76.01**	**19,027**		**77.00**

ac - acre
lf - linear feet
LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration / Enhancement activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Buffer widths are sufficient to avoid mitigation value conflicts between wetlands and streams ("double-dipping").

Project Summaries

The following section provides a detailed summary of each project located within the Potomac River Basin for which the Corps has authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

PO-1 Caledon (Nash)

The purpose of this project is to conduct non-tidal wetland restoration and preservation, upland

buffer restoration and preservation, stream restoration, and livestock exclusion activities at the Nash property in King George County. The funding to complete the acquisition and wetland component of this project was approved by the Corps on May 23, 2001. The funding to complete the stream component of this project was approved by the Corps on December 19, 2003. The Conservancy proposed to reverse the existing ditching effects and restore the forest cover in the pastureland at the property and to restore the proper dimension, pattern, and profile to the degraded segment of an unnamed tributary to Chotank Creek.

The Nash property is located immediately east of Caledon State Park. The property was placed under easement on June 14, 2001, by the Conservancy, and the easement is currently held and monitored by the Virginia Outdoors Foundation (VOF). The easement contributed to the protection of over 1,400 acres, which were dedicated as the Chotank Creek Natural Area Preserve. The Trust for Public Land negotiated the deal and other major partners included the Virginia Department of Conservation and Recreation (DCR), the VOF, the Chesapeake Bay Foundation (CBF), and the United States Fish and Wildlife Service (FWS). The protection of Chotank Creek Natural Area Preserve creates a corridor of more than 4,000 acres of protected land on the Virginia side of the Potomac River. This area is one of the most significant summering spots for the American Bald Eagle (*Haliaeetus leucocephalus*). Long-term protection of the property is accomplished through the monitoring and enforcement of the easement by VOF.

The property is approximately 160 acres with 100 acres of mixed hardwood/pine forest and 60 acres of pastureland including converted and degraded wetlands. This entire 160 acres is considered as mitigation area. A section of an unnamed tributary to Chotank Creek had been channelized and relocated to serve as the water source for livestock. The livestock were preventing the colonization of woody vegetation in the pasture and causing serious stream bank and channel degradation, in addition to decreasing water quality through the direct addition of fecal material.

Wetland Summary

Based on landscape setting, hydrology, and analyses of vegetation in surrounding areas, the appropriate ecological community groups to target for restoration of the pastureland consists of non-riverine wet hardwood forests and mesic mixed hardwood forest. The goal of the proposed mitigation activities is to restore the livestock pasture area to a mixture of forested wetlands (10 acres) and upland buffer (26 acres) and to preserve approximately 50 acres of forested wetland 66 acres of upland. The original proposed wetland restoration area of 40 acres was revised to 10 acres in the 2005 Annual Report based upon hydrologic information collected on the site.

In 2003, the Conservancy plugged several ditches and other drainage features in the pasture and the wetland and stream mitigation areas were fenced from the livestock. In 2004, the pasture was planted with 15,000 bare root seedlings composed of nine different native wetland hardwood tree species. The Conservancy installed five automatic-reading shallow groundwater level monitoring wells in representative locations in the wetland restoration area in 2004 that have been used to monitor hydrology annually. Results from hydrological monitoring indicate that portions of the site are not experiencing saturation and inundation sufficient to meet hydrology standards; however, a roughly 9-acre area exhibits strong wetland characteristics including dominance by FACW and/or OBL wetland plant species that indicate wetland hydrology is present. Planted tree survival and natural colonization is below 400 stems per acre based upon monitoring results and site observations. In addition weedy species such as blackberry (Rubus spp.), multiflora rose (*Rosa multiflora*) and soft needle rush (*Juncus effusus*) have contributed to both low planted tree survival and low natural colonization in many areas. In order to meet the goals of the project

pertaining to establishment of forested wetlands corrective action is necessary. Specifically, a large section of the site (~12 ac) should be subjected to a soil de-compaction method, the invasive species controlled using herbicide, and the area re-planted with seedlings. This is the fourth year post construction and mitigation monitoring is scheduled through 2013 with reports submitted to the Corps.

Stream Summary

In 2004, the Conservancy conducted stream restoration activities at the site including the Priority 1 relocation of 300 linear feet of the unnamed tributary to Chotank Creek. The stream was relocated into the historic channel located within a mature forest. The historic channel was in stable condition and did not require additional work. The Conservancy also conducted Priority 2 restoration along 650 linear feet of channel upstream of and adjacent to the Priority 1 relocation. As part of this work, several instream structures were installed for grade control and bank protection. Along this section, the restored channel is buffered by an existing mature forest (with several small areas of buffer enhancement) ranging from 50 to 200 feet wide along the right bank. The left bank did not require additional planting, as it was currently forested with a mature hardwood forest. The Fund also installed over 6,000 linear feet of livestock exclusion fencing to permanently remove livestock from a total of 1,600 linear feet of stream channel (including the 950 linear feet of restored channel) and a small pond located on the property. As part of the livestock exclusion activity, an alternative water source was also installed at the site.

The stream at the site is a very small, headwater channel. The Conservancy proposed to survey two permanent cross sections located along the Priority 2 segment of the channel and visually inspecting the channel bed, banks, and instream structures. The yearly survey results are compared to both the as-built survey and the previous surveys to determine if the channel is departing from stable conditions.

The initial annual monitoring event was conducted in November 2006. The results of the monitoring indicted that the system is stable and has not departed significantly from the as-built conditions. Due to the small size of the channel, it's location in the watershed, and the amount of time that has passed since the completion of the construction with no changes to channel stability, the Conservancy proposed closing this project in 2007. The Corps agreed with this and officially closed the project in November 2007.

PO-2 Dogue Creek Site

The purpose of this project is to conduct stream restoration activities at a property in Fairfax County. The Northern Virginia Soil and Water Conservation District (NOVA SWCD) and Vanasse Hangen Brustlin, Inc. (VHB) identified this site and approached the Conservancy to discuss completing this restoration project through the Fund. The funding for this project was approved by the Corps on October 6, 2006. The Conservancy proposed to conduct approximately 2,500 linear feet of restoration activities along two tributaries to Dogue Creek. The landowner will donate a conservation easement on the 5.30 acre site, which consists of a "no-touch" stream and riparian buffer corridor. The easement will be held by the NOVA SWCD and the Northern Virginia Conservation Trust (NVCT). Long-term protection of the property is accomplished through the monitoring and enforcement of the easement by NOVA SWCD and NVCT. The schedule for the stream monitoring and reporting events will be finalized through the permitting process.

The upstream termini of this project ties into a formerly restored project site (referred to as Phase 1) which involved the Priority 1 relocation of approximately 1,200 lf of the main tributary to

Dogue Creek. This project was completed in 1999 and, as determined through geomorphic monitoring, the system has maintained the designed stable conditions. Within 500 feet downstream of the subject property boundary, the tributary enters Huntley Meadow Park. This 1,400 acre park contains numerous protected stream and wetland complexes which are very unique for such a highly urbanized area. The proposed restoration project will ultimately enhance the existing wetlands and streams at the park by reducing sedimentation to these systems and increasing wildlife corridors. In addition, many Virginia Department of Conservation and Recreation (DCR) Natural Heritage element occurrences are within the vicinity of the site.

The County and NOVA SWCD identified this reach as a primary area for restoration activities. The main tributary is severely incised with massive bank wasting and erosion. The incision is most likely the result of the urban nature of the area and past channel alterations. The stream is not able to access the floodplain during bankfull events, leading to additional incision and bank erosion. If the restoration project is not completed, the stream will likely continue to degrade. The mitigation activities include the Priority 1 relocation of approximately 2,300 linear feet and the Priority 2 restoration of approximately 200 linear feet of channel. The restored channels will be buffered by an existing mature riparian forest (with several small areas of enhancement) ranging from approximately 50 to 150 feet along each bank.

The Conservancy anticipates the protection method will be finalized in 2008. Once this is recorded, the Conservancy will finalize the planning process to implement this project.

PO-3 Goose Creek Site

The purpose of this project is to conduct stream restoration, enhancement, and livestock exclusion activities at a property in Loudoun County. The property was identified as a potential site through the Conservancy's outreach to local interest groups in Loudoun County. The Goose Creek Association and the Loudoun County Natural Resources Conservation Service (NRCS) contacted the Conservancy to discuss completing this restoration and enhancement project through the Fund. The funding for this project was approved by the Corps on December 7, 2006. The Conservancy proposed to install livestock exclusion fencing and conduct restoration and enhancement activities along approximately 6,877 linear feet of several unnamed tributaries to Crooked Run. The landowners will donate a conservation easement over an approximate 80 to 100 foot wide "no-touch" riparian area along each bank of the tributaries on the subject property (total of 28 acres). This easement will be held by the Conservancy. Long-term protection of the property is accomplished through the monitoring and enforcement of the easement by the Conservancy. The schedule for the stream monitoring and reporting events will be finalized through the permitting process.

The Conservancy identified the Goose Creek watershed as a stream Portfolio Conservation Area and a critical area for restoration. The property is adjacent to several Virginia Outdoors Foundation (VOF) and Loudoun County Open Space easements, providing additional habitat and corridors for wildlife. Several Department of Conservation and Recreation Natural Heritage element occurrences are within approximately three miles of the sites, including Sandbar Willow (*Salix exigua*) and the Dotted Skipper (*Hesperia attalus slossonae).* Crooked Run drains into the North Fork of the Goose Creek which is a Virginia Department of Environmental Quality 303d listed stream for fecal coliform. As part of the Potomac River drainage and the Chesapeake Bay watershed, this project contributes to water quality improvement goals set for the Bay. In addition, the landowner is interested in showcasing the stream restoration and enhancement activities to other landowners and set a precedent for cattle farmers in the area. The landowners and the local NRCS representative will actively campaign to have this project serve as a catalyst

for additional stream projects in this watershed.

Prior to the Conservancy involvement, nearly the entire property was used to graze cattle, which used the stream as their sole water source. All of the channels have some degree of incision, with eroding banks, aggradation, and degradation. The stream is not able to access the floodplain during bankfull events, leading to additional incision and bank erosion. If the restoration project is not completed and the cattle have continued access to the streams, the systems will likely continue to degrade. The mitigation activities include the restoration or enhancement of approximately 6,877 linear feet of channel. The Conservancy will also plant a riparian buffer ranging from approximately 80 to 100 feet along each bank for the majority of the length of all reaches. Of the total linear footage, both banks of approximately 5,182 linear feet of channel are located on the property and will be fully protected. In addition to the channel and buffer activities, the Conservancy will install livestock exclusion fencing to remove cattle from all 6,877 linear feet of channel.

The Conservancy anticipates the easement will be finalized in 2008. Once the easement is signed, the Conservancy will finalize the planning process to implement this project.

PO-4 Goose Creek Site

The purpose of this project is to conduct a real estate appraisal of this approximate 200 acre property for a potential stream and wetland restoration/enhancement project. The site is located in Loudoun County within the Goose Creek watershed. The funding for this appraisal was approved by the Corps on October 11, 2006 and January 2007. Negotiations with the landowner did not yield a viable project. The Conservancy closed this project in 2007.

PO-5 Goose Creek (Bluewildlife, LLC)

The purpose of this project is to conduct non-tidal wetland enhancement and creation and stream restoration, enhancement and preservation activities at the Bluewildlife property in Fauquier County. The funding to complete these activities was approved by the Corps on July 27, 2007. The Conservancy proposed to restore the forest cover in the riparian area of the property and to restore the proper dimension, pattern, and profile to the degraded portion of Bolling Branch that occurs on the property along with several unnamed tributaries and the creation of floodplain wetland system. The landowner donated a conservation easement on a 119 acre property in 2007, of which 42 acres will serve as mitigation acreage and be subject to “no touch” restrictions and undergo mitigation activities.

The entire property was formerly used as pasture to graze cattle, which had full access to the streams which served as their water source. The livestock prevented the colonization of woody vegetation in the pasture and have caused stream bank and channel degradation, in addition to impacting water quality through the direct addition of fecal material.

The purpose of the proposed stream mitigation activities is to reconfigure the stream channels located on the property to the equilibrium geometry capable of maintaining itself over time, while preserving the currently stable reaches. In addition to addressing deficiencies in the current dimension, pattern, and profile conditions of the systems, the project will also either protect the existing wooded buffer or provide the establishment of a wooded buffer.

The Bluewildlife project includes a total of approximately 8,050 linear feet of stream, of which,

7,200 linear feet is proposed for stream channel restoration/enhancement activities with an additional 750 linear feet proposed for riparian buffer enhancement. Approximately 5,000 linear feet (extending downstream from the upstream boundary) of Bolling Branch will undergo restoration and enhancement activities. In addition to areas of Priority I relocation, portions of Bolling Branch will be restored by creating bankfull benches (dimension), enhancement of meander bends (pattern), and implementing instream structures (cross vanes) for habitat and grade control (profile). The left bank of approximately 750 linear feet of the downstream section will be planted. This section is currently stable and buffered with a mature forest on the right bank.

The appropriate dimension, pattern, and profile will also be restored along two tributaries. These activities will include the creation of bankfull benches, bank shaping and sloping, and the installation of grade control structures. A third tributary, which is currently stable with a mature wooded buffer, will be preserved.

Every attempt will be taken during design and construction phases to minimize disturbance to the existing woody vegetation. The banks will be stabilized with willow and alder stakes and the channel, banks, and all disturbed areas seeded with the appropriate permanent seed mix.

The floodplain of Bolling Branch is largely maintained as upland pasture, although there are smaller areas of emergent wetlands resulting from historical oxbows or meander scrolls. These wetlands are presently degraded in function by the maintenance mowing and previous livestock activities and likely reduced in extent as a result of the stream degradation. The floodplain is wide and flat and is underlain by silt and fine sand sediments. There is a relatively large and steep contributing drainage area directly adjacent to the floodplain much of which is located on the subject property.

The Bluewildlife project includes approximately 5 acres of wetland creation and 1.5 acres of wetland enhancement located within the floodplain along Bolling Branch. There are three areas proposed for wetland creation that are primarily in the southern half of Bolling Branch and are situated adjacent to the existing wetland areas. These areas are in a landscape setting with suitable soils and hydrologic sources to support the establishment of functional wetlands. In addition to surface water from a contributing drainage area the stream restoration work is anticipated to raise the local groundwater table and may contribute surface water during flood flows. Wetland enhancement activities will include increasing species diversity via additional emergent, scrub-shrub and forested plantings. A primary objective of the landowner is to improve wildlife habitat and this provides an opportunity to integrate wildlife habitat with other wetland project goals. In that effort, habitat for wood ducks (*Aix spinosa*) will be incorporated into the overall project by installing wood duck nesting boxes. These activities will create habitat and augment the many habitat and water quality functions provided by wetlands.

The Conservancy is currently proposing a woody riparian buffer width typically ranging from 100 to 200 feet on each side of all stream banks with the few exceptions noted below. The proposed buffer widths range from 25 feet to over 400 feet. The proposed planting plan involves the planting of approximately 35 acres with a combination of native shrub or tree plant materials at a planting density of 525 woody stems per acre. The Conservancy anticipates that the stream channel and wetland restoration activities will take place in the fall of 2008 and be followed by the buffer plantings.

Rappahannock River Basin

The Rappahannock River Basin is comprised of two HUCs (02080103 and 02080104) encompassing the headwaters of the Rappahannock and Rapidan Rivers east to the Chesapeake Bay. This basin is located within both the Conservancy's Piedmont and Chesapeake Bay Lowlands Ecoregions. Conservation targets include small, Blue Ridge foothill streams and inner Piedmont streams, tributaries, and rivers, anadromous fishes, freshwater mussels, seepage wetlands, tidal freshwater system, migratory land birds and raptors, Coastal Plain mixed pine-hardwood forest matrix, Piedmont forest matrix, and calcareous forest.

The projects discussed in this section serve as mitigation for permitted impacts within the Rappahannock River Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue nine mitigation projects in this basin. The Corps has authorized funds for all nine projects. Four projects (RP-5, RP-7, RP-8, RP-9) provide mitigation for impacts to non-tidal wetlands, one project (RP-1) provides mitigation for permitted impacts to tidal wetlands, and three projects (RP-2, RP-3, RP-4) provide mitigation for permitted impacts to streams. The sixth project (RP-6) involved the authorization of funds to conduct a real estate appraisal of the property to pursue a potential non-tidal wetland mitigation project. Due to landowner constraints and the findings of the appraisal, this project was not pursued.

The following table provides a summary of projects for which funds were approved in the Rappahannock River Basin. A detailed summary of each project is included in the section below.

Table 23: Approved Project Summary for the Rappahannock River Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized			Closed Projects
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)	Funds Returned Upon Closure ($)
RP-1	Rappahannock Phragmites Control	M	4/11/01	0.00	10,000.00	0.00	0.00
RP-2	Linden Farm	M	7/30/02	0.00	0.00	61,894.00	0.00
RP-3	Rappahannock River Fish Passage	M	12/5/02	0.00	0.00	39,700.00	0.00
RP-4	Upper Rappahannock (City of Fredericksburg)	M	6/30/03	0.00	0.00	1,100,000.00	
		M	5/23/05	0.00	0.00	206,275.00	
		M	7/27/06	0.00	0.00	654,665.00	
		M	2/22/07	0.00	0.00	56,479.49	
RP-5	Rappahannock River (Wellford)	M	4/21/05	14,000.00	0.00	0.00	
RP-6	Rapidan River Site	A	9/9/05	6,500.00	0.00	0.00	3,500.00
RP-7	Upper Rappahannock Forest Block site	M	2/22/07	114,816.00	0.00	0.00	
RP-8	Upper Rappahannock Forest Block (Collawn, R.)	M	2/22/07	121,316.00	0.00	0.00	
RP-9	Rappahannock River (Rose)	M	8/10/07	81,000.00	0.00	0.00	
			Totals	**337,632.00**	**10,000.00**	**2,119,013.49**	
			Grand Total	**2,466,645.49**			

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following tables summarize the status, proposed mitigation activity type and associated acreage, and proposed credit for each non-tidal and tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the Rappahannock River Basin. In addition, the tables provide the amount of impact acres in the basin, the total mitigation liability in credits, and a measure of the wetland area that is proposed to be replaced through restoration or creation activities in comparison to the amount impacted. The tables do not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 24: Non-Tidal Wetland Project Summary for the Rappahannock River Basin.

Project Information		NT Wetland (Ac)			Upland (Ac)		Mitigation	Proposed	Additional
Project ID	Status	Rest/Cr	Pres	Enh	Rest	Pres	Acres	Credits	Protected
RP-5	D		16.40			1.60	18.00	1.72	
RP-7	LP	4.00	3.90		6.00	12.10	26.00	5.40	140.40
RP-8	D		9.80			10.00	19.80	1.48	56.30
RP-9	D		6.50			14.00	20.50	1.35	54.10
Sub-totals		**4.00**	**36.60**	**0.00**	**6.00**	**37.70**	**84.30**	**9.95**	**250.80**

Total Acres of Non-Tidal Impacts	**9.90**
Total Mitigation Liability	**18.98**
Total Proposed Credits	**9.95**
Percent of Wetland Acreage Replacement	**40.4**

LP - Pending finalization of land protection	I - Restoration/Enhancement/Creation activities in progress
P - Planning / permitting	M - Mitigation monitoring
D - Pending delineation / assessment	CA - Corrective actions necessary
	PC - Pending project closure

Table 25: Tidal Wetland Project Summary for the Rappahannock River Basin.

Project Information		Salt Marsh	SAV	Oyster	Tidal	Tidal	Mitigation	Proposed
Project #	Status	Rest	Rest	Rest	Enh	Pres	Acres	Credits
RP-1	C				80.00		80.00	1.60
Acre Sub-totals		**0.00**	**0.00**	**0.00**	**80.00**	**0.00**	**80.00**	**1.60**
Credit Sub-totals		**0.00**	**0.00**	**0.00**	**1.60**	**0.00**		

Total Acres of Non-tidal Impacts	**0.00**
Total Mitigation Liability	**0.00**
Total Proposed Credits	**1.60**
Percent of Wetland Acreage Replacement	**0.0**

LP - Pending finalization of land protection	I - Restoration/Enhancement/Creation activities in progress
P - Planning / permitting	M - Mitigation monitoring
D - Pending delineation / assessment	CA - Corrective actions necessary
C - Closed	PC - Pending project closure

As noted in Section II, the Fund has been used to mitigate for 14,936 linear feet of permitted stream impacts in the Rappahannock River Basin through 2007. The following table summarizes the status, the protected stream length, and a description of the proposed or completed mitigation activities with the associated channel length for each activity for each stream project pursued by the Conservancy to serve as mitigation for impacts in the Rappahannock River Basin.

Table 26: Stream Project Summary for the Rappahannock River Basin.

Project ID	Project Status	Stream Mitigation Area (ac)	Channel Length in Mitigation Area (lf)	Mitigation Activity Description	Additional Protected Acreage
RP-2	C	28.00	7,742	Riparian buffer planting (approximately 100 to 300 feet wide) along both banks of 2,000 lf of stream channel. Livestock exclusion fencing installed to protect 7,742 lf of unnamed tributaries to Mountain Run and a pond.	0.00
RP-3	C	NA	NA	Installed an Alaskan steep-pass structure in White Oak Run to allow the migration of anadromous fishes.	NA
RP-4	LP, D	1,253.38	304,297	Riparian buffer preservation of 68,634 linear feet along both banks and 38,950 lf along one bank of the Rappahannock River. Riparian buffer preservation of 37,115 lf along both banks and 23,668 lf along one bank of the Rapidan River. Riparian buffer preservation along 135,930 lf of both banks of unnamed tributaries to the two rivers. Protected buffers are 100 foot wide predominantly mature woodlands.	2,978.62
	Totals	**1,281.38**	**312,039**		**2,978.62**

ac - acre
lf - linear feet
LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration / Enhancement activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Buffer widths are sufficient to avoid mitigation value conflicts between wetlands and streams ("double-dipping").

Project Summaries

The following section provides a detailed summary of each project located within the Rappahannock River Basin for which the Corps authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

RP-1 Rappahannock River Phragmites Eradication

The purpose of this project is to conduct tidal enhancement activities along 80 acres of the shores of the Rappahannock River. This project was sponsored by the Friends of the Rappahannock. The funding for this project was approved by the Corps on April 11, 2001. Long-term protection and monitoring were not required for this project and success standards were not associated with

the site activities.

In response to *Phragmites australis* (Phragmites) invasion along the Rappahannock River concerned landowners and public agencies formed the Rappahannock Phragmites Action Committee in January of 2000 and it was through this coordinated effort that funding was requested. The primary point of contact for this project was the United States Fish and Wildlife Service, who was instrumental in securing permissions, requesting funding, and mapping locations of the federally endangered sensitive joint vetch (*Aechynomene virginica*) species known to occur in the watershed to prevent any risk to these populations by the spraying activities. The treatment included the aerial spraying of glyphosate, a broad spectrum non-specific herbicide, on approximately 80 acres. The treatment was conducted in 2001. Because Phragmites control is not a typical mitigation activity, the Conservancy proposed that this project be credited at a greater than normal ratio (e.g. 50:1). The Conservancy requested closure of this project in 2007. The Corps officially closed this project in August 2007 and designated 1.60 credits earned through this project.

RP-2 Linden Farm

The purpose of this project is to install livestock exclusion fencing and conduct riparian buffer planting at the Linden Farm property in Orange County. The project was initiated and sponsored by the Friends of the Rappahannock. The funding for this project was approved by the Corps on July 30, 2002. The funding provided, in part, to place 28 acres of the property under a conservation easement. This protected mitigation area was in conjunction with an adjacent 90 acres the Chesapeake Bay Foundation (CBF) placed under easement through their own program. CBF currently holds and monitors the easement on the property. Long-term protection of the property is achieved through the monitoring and enforcement of the easement by CBF. Monitoring was not required for this project and success standards were not associated with the site activities.

The Linden Farm property is an active cattle farm located in Orange County. The property was identified by the Friends of the Rappahannock as a priority site to improve water quality in the Mountain Run watershed. Mountain Run (one bank), several unnamed tributaries (both banks), and a pond are located on the property. Prior to the project activities, cattle had access to these systems, leading to the degradation of water quality through the direct addition of fecal material and sedimentation. In the fall of 2002, the Conservancy installed 10,745 linear feet of livestock exclusion fencing, which excluded cattle from 7,742 linear feet of channel and the pond. The Conservancy also conducted riparian buffer planting along 2,000 linear feet of the same tributary in the fall of 2003. The width of the buffer ranged from approximately 100 to 300 feet along both banks. Additional livestock exclusion measures and riparian buffer planting at the site were funded by CBF.

The CBF initiated their site monitoring in 2003. The Conservancy contacts CBF annually to discuss the condition of the fencing and plantings at the site. No problems have been noted at the site to date. The Conservancy requested official closure of this project in 2007. The project was officially closed in July 2007.

RP-3 Rappahannock River Fish Passage

The purpose of this project is to restore historical ranges for certain species of fishes by providing passage over tributary barriers that exist on Claiborne Run and White Oak Run, both tributaries of

the Rappahannock River. The project was identified and sponsored by the Virginia Department of Game and Inland Fisheries (DGIF) and the Virginia Commonwealth University. The funding for this project was approved by the Corps on December 5, 2002. Long-term protection and monitoring were not required for this project, and success standards were not associated with the site activities.

The scope of work for this project included the installation of Alaskan steep-pass structures to allow the migration of anadromous fishes including shads and herrings, as well as, resident and semi-migratory fishes. The White Oak Run passage, located in Stafford County near Fredericksburg, was installed in the spring of 2005. The Conservancy worked with the contractor, the DGIF, and the United States Fish and Wildlife Service to review and conduct required changes to the passage during 2005 to assure that it would achieve the intended objective of fish passage. While not under any contractual obligation, DGIF has agreed to conduct monitoring of the fish passage. Due to landowner conflicts, the proposed passage at Claiborne Run will not be constructed. The Conservancy requested the project be closed and the Corps officially closed the project in 2007.

RP-4 Upper Rappahannock (City of Fredericksburg)

The purpose of this project is to conduct stream and the associated upland riparian buffer preservation along a significant length of the Rappahannock and Rapidan Rivers (and associated tributaries) on a property owned by the City of Fredericksburg. The initial funding for this project was approved by the Corps on June 30, 2003, with three subsequent approvals on May 23, 2005, July 27, 2006, and February 22, 2007. The Conservancy, and partners, purchased a conservation easement on approximately 4,232 acres along the two major rivers. The Conservancy, the Virginia Outdoors Foundation, and the Virginia Department of Game and Inland Fisheries will co-hold the easement. Long-term protection of the site will be achieved through the monitoring and enforcement of the easement. No additional monitoring is required for this project.

This property lies in the counties of Stafford, Spotsylvania, Culpeper, Fauquier, and Orange. The property to be protected by this easement creates a virtually unfragmented riparian corridor immediately upstream of the Embrey dam, protecting the aquatic habitat for American shad and other anadromous fish that has only recently been made accessible by the removal of that obstacle. The Upper Rappahannock watershed has been identified by the Conservancy as a landscape-scale conservation area. The determination resulted from the Mott Foundation research undertaken by the Freshwater Initiative of The Conservancy in the Southeastern United States. In addition to the aquatic communities, the Upper Rappahannock watershed also contains three forest matrix blocks--the Northern Shenandoah, the Watery Mountains, and the Culpeper Flatwoods. The Upper Rappahannock River watershed contains some of the best remaining high quality Blue Ridge foothill streams and inner Piedmont rivers. It supports healthy freshwater mussel and fish communities including strong populations of the dwarf wedgemussel (*Alasmidonta heterodon*) and three other imperiled mussels. In addition, the City's riparian lands provide excellent habitat for the bald eagle (*Haliaeetus leucocephalus).* The Department of Conservation and Recreation (DCR) documented Natural Heritage element occurrences of bald eagles along the Rappahannock on or near the City's property. The permanent protection of these riparian lands will also protect the habitat and spawning grounds for alosids such as the American shad. This habitat was recently made accessible by the Corps upon removal of the Embrey Dam. In addition, DCR has identified Natural Heritage element occurrences of the federally endangered dwarf wedgemussel (*Alasmidonta heterodon)* in reaches of the Rappahannock River protected by

this easement.

The easement will provide upland riparian buffer preservation along an estimated 107,584 linear feet (20.40 miles) of the Rappahannock River (68,634 linear feet along both banks and 38,950 linear feet along a single bank), 60,783 linear feet (11.50 miles) of the Rapidan River (37,115 linear feet along both banks and 23,668 linear feet along a single bank), and 135,930 linear feet (25.70 miles) of both banks of tributaries to these rivers. The total linear feet of riparian buffer protected by this project is 304,297 or 57.60 miles. The proposed buffer preservation includes a minimum 100 foot wide (per bank) "no touch buffer" along the entire project for a total mitigation area of 1,253.38 acres. The remaining 2,978.62 acres may be subject to activities that exclude its appropriateness as compensatory mitigation, but can be viewed as additional protected acreage as they will not be developed.

The Conservancy anticipates closing this project following completion of the surface water delineation or assessment.

RP-5 Rappahannock River (Wellford)

The purpose of this project is to conduct non-tidal wetland and upland buffer preservation at the Wellford Farms property in Richmond County. The funding for this project was approved by the Corps on April 21, 2005. The Conservancy proposed to buy the timber rights for an 18-acre portion of the property including wetlands and upland buffer. The property was placed under easement on April 5 2005, which is held and monitored by the Virginia Outdoors Foundation (VOF). Long-term protection of this site is achieved through the monitoring and enforcement of this easement by VOF. No additional monitoring is required for this project.

The Conservancy negotiated purchase of a conservation easement to extinguish the timber rights on 18.0 acres containing approximately 16.4 acres of forested wetlands and 1.6 acres of upland buffers on the property. A confirmed delineation of the site is required to determine mitigation credit. The Conservancy anticipates closing this project following confirmation of the delineation.

RP-6 Rapidan River Site

The purpose of this project is to conduct a real estate appraisal of a 28 acre site for a potential wetland restoration/enhancement project. The funding for this appraisal was approved by the Corps on September 9, 2005. However, the project was not pursued due to landowner constraints. The Conservancy officially closed this project in 2007. All unspent funds were unallocated and returned to the general balance of the fund.

RP-7 Upper Rappahannock Forest Block site

The purpose of this project is to pursue wetland restoration and preservation mitigation activities on this site on Hutchinson Creek, a tributary to the Rappahannock River in Essex County. The Virginia Outdoors Foundation will co-hold the easement with the Conservancy on 166.4 acres and is providing additional funds to purchase this easement.

The 166.4-acre property includes approximately 87.2 acres of working farmland, 9.2 acres of NWI wetlands and 70.0 acres of forested land in two parcels that are physically separated but in the same ownership. The southern portion of the property is 116 acres and contains working

farmland and managed forestland on relatively flat land some of which is underlain by hydric soils. This portion of the site has been ditched in certain areas of the fields to facilitate drainage. The removal of the natural woody composition and introduction of non-native crops has severely impacted the historical wetlands on the site and degraded their functionality. The northern portion of the property is approximately 50 acres and is comprised of upland that is dissected by Hutchinson Creek and associated wetlands that have not been altered or significantly degraded. This area contains an active Bald eagle nest that produced two juvenile eagles in 2006.

There is the potential to conduct wetland mitigation activities on the property. Specifically the northern portion of the property contains a functional wetland complex while the southern portion of the project area is more suitable to the re-establishment, creation and enhancement of wetlands and buffers. In addition to the acquisition and stewardship costs, the purpose of this project will provide funding to complete a baseline assessment and to develop a conceptual mitigation plan to determine the most appropriate and cost effective mitigation option for the site.

The northern section of the property contains a mitigation area of 9.9 acres within which a functional wetland of approximately 3.9 acres is located, providing approximately 6.0 acres of upland buffer and preservation remaining. No other mitigation activities beyond preservation are proposed for this section of the site.

The southern section of the project contains a mitigation area of 16.3 acres that is comprised of a 10.3-acre agricultural field and roughly 6 acres of upland and wetland buffer. It is this area that holds the most potential for wetland mitigation through restoration, enhancement and creation of wetlands. The field is convex in shape with the higher points 1 foot or so higher in the central portion of the field, which gently slopes to the west and east. The edges of this field are underlain by Tomotley soil series, a listed hydric soil and the presence of perimeter ditches suggests that active drainage is necessary to farm the site. The central portion of the site is underlain by Augusta soil series which is not a listed hydric soil. The hydrology of degraded wetlands in close proximity to the ditches will be restored largely as a result of reversing the drainage effects of the ditching and in other areas minor grading to establish wetland hydrology may be completed. Vegetation re-establishment will include invasive species control, soil treatments (e.g. increases of organic matter, fertilizing, etc) and plantings. According to the information available we anticipate restoration and/or creation to be possible on 3 to 5 acres of the field, although there several areas of investigation that must be pursued before this is verified.

The Conservancy is still in negotiations with the landowner regarding the easement and restoration plans for this site. Once the easement is completed, the Conservancy will finalize the restoration plans for this site.

RP-8 Upper Rappahannock Forest Block (Collawn, R.)

The purpose of this project is to conduct wetland and upland preservation mitigation activities on the Collawn property on Hutchinson Creek, a tributary to the Rappahannock River in Essex County. The property is 76.1 acres and has been placed under easement that is co-held between the Conservancy and the Virginia Outdoors Foundation.

The 76.1-acre property includes approximately 48.39 acres of working farmland, 6.35 acres of NWI wetlands and 21.35 acres of forested land. The property is flat and dissected by Hutchinson Creek, which contains an active Bald eagle nest. The nest produced two juvenile eagles in 2006.

There is the potential to conduct wetland mitigation activities on the Collawn property. Specifically, the mitigation area consists of 19.8 acres within which a functional wetland of approximately 9.8 acres is located, providing approximately 10.0 acres of upland buffer and preservation remaining. No other mitigation activities beyond preservation are proposed for this section of the site. The easement will prohibit disturbance within the mitigation area.

A wetland delineation will be completed on the mitigation area and coordinated with USACE for confirmation within one year of acquisition. Following confirmation of the delineation the Conservancy will request closure of this project.

RP-6 Rappahannock River (Rose)

The purpose of this project is to conduct wetland preservation activities on the 74.6-acre Rose property on the Rappahannock River in Essex County. The easement area is a mixture of mature, mixed hardwood forest, retired agricultural fields now in grassland, non-tidal and tidal wetlands. Wetland preservation will protect approximately 6.5 acres of non-tidal forested wetlands located within a confined valley, surrounded by mature, mixed hardwood forest including oaks, hickory, poplar, maple, and pines. Approximately 14.4 acres are tidal, emergent marsh wetlands along the banks of the Rappahannock River. However, the protection of the tidal wetlands is not attributed to the Fund. A 200' wetland buffer is required within the conservation easement and encompasses a total of fourteen acres. This provides a total mitigation area on this property of 20.5 acres and additional protected acreage of 54.1 acres.

This project was brought to the Conservancy by FWS. The Service provided most of the funding for the easement purchase for this site. The Fund provided partial funding to secure the conservation easement that is held and will be monitored by the FWS. A wetland delineation is required and will be confirmed prior to the Conservancy requesting closure of this project.

Roanoke River Basin

The Roanoke River Basin is comprised of seven HUCs (03010101, 03010102, 03010103, 03010104, 03010105, 03010106 and 0304010) encompassing the Roanoke headwaters and the Dan River draining south into North Carolina. This basin is located within both the Conservancy's Piedmont and Central Appalachian Forest Ecoregions. Conservation targets include Ridge and Valley Rivers, calcareous seeps/fens, basic mesic forests, acidic oak pine forests, calcareous woodlands/forests, and warmwater fish communities including orangefin, madtom, Roanoke hogsucker, bigeye jumprock, Roanoke logperch and riverweed darter.

The projects discussed in this section serve as mitigation for permitted impacts within the Roanoke River Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue three mitigation projects in this basin. The Corps has authorized funds for all of these projects. Each approved project provides mitigation for permitted impacts to streams, while RO-3 also provides mitigation for non-tidal wetlands.

The following table provides a summary of projects for which funds were approved in the Roanoke River Basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table 27: Approved Project Summary for the Roanoke River Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized		
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)
RO-1	Apple Orchard Mountain (Edwards)	M	6/7/05	0.00	0.00	180,000.00
RO-2	Apple Orchard Mountain (City of Bedford)	M	6/7/05	0.00	0.00	15,000.00
		M	2/7/06	0.00	0.00	8,250.00
RO-3	Goose Creek-Roanoke Bedford County site	F	2/22/07	10,075	0.00	10,075
			Totals	**10,075**	**0.00**	**213,325.00**
			Grand Total	**223,400.00**		

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

As noted in Section II, the Fund has been used to mitigate for 6,142 linear feet of permitted stream impacts in the Roanoke River Basin through 2007. The following table summarizes the status, the protected stream length, and a description of the proposed or completed mitigation activities with the associated channel length for each activity for each stream project pursued by the Conservancy to serve as mitigation for impacts in the Roanoke River Basin.

Table 28: Stream Project Summary for the Roanoke River Basin.

Project ID	Project Status	Stream Mitigation Area (ac)	Channel Length in Mitigation Area (lf)	Mitigation Activity Description	Additional Protected Acreage
RO-1	PC	36.50	5,220	Riparian buffer preservation along 2,379 lf of the right bank of Little Stony Creek with an existing mature wooded buffer width of 200 feet. Within this reach, riparian buffer preservation along 659 lf of the left bank with an existing mature wooded buffer width of primarily 125 feet. Stream system preservation along both banks of 2,841 lf of three unnamed tributaries to Little Stony Creek with an existing mature wooded buffer width of 200 feet (except for several areas of a minimum 125 foot buffer).	16.50
RO-2	PC	3.96	788	Riparian buffer preservation along 788 lf of the right bank of Little Stony Creek with an existing mature wooded buffer width of 200 feet. Within this reach, riparian buffer preservation along 300 lf of the left bank with an existing mature wooded buffer width of 50 feet.	9.79
	Totals	**40.46**	**6,008**		**26.29**

ac - acre
lf - linear feet
LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration / Enhancement activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Buffer widths are sufficient to avoid mitigation value conflicts between wetlands and streams ("double-dipping").

Project Summaries

The following section provides a detailed summary of each project located within the Roanoke River Basin for which the Corps has authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

RO-1 Apple Orchard Mountain (Edwards)

The purpose of this project is to conduct stream and the associated upland riparian buffer preservation at the Edwards property in Bedford County. The project was initiated by the Western Virginia Land Trust (WVLT) to preserve the pristine stream channels and buffers located on the 53 acre parcel. The funding for this project was approved by the Corps on June 7, 2005. The WVLT acquired the property in 2005 and transferred the property to the National Park Service (NPS) in 2007. Long-term protection of the project will be achieved through a Corps approved management agreement with NPS. No additional monitoring is required for this project.

The Edwards property is located on the Peaks of Otter mountain range. The area provides habitat for the indigenous Peaks of Otter Salamander. Little Stony Creek and three unnamed tributaries are located on the property. The stream channels are in stable condition and require no

restoration or enhancement activities. The project parcel and surrounding properties are pristine, mature, mixed hardwood forests with virtually no disturbances. The project is adjacent to two parcels currently owned by the NPS and adjacent to a parcel protected by a Virginia Outdoors Foundation easement. The majority of the watersheds are included in the parcel and/or on NPS land. There is minimal development potential upstream due to the surrounding property's slope and ownership. The site is also adjacent to and south (downstream) of the City of Bedford project (RO-2).

The Conservancy completed a surface water delineation on April 21, 2005, and determined that 5,220 linear feet of stream channel is preserved at the site. The Corps confirmed this determination on March 18, 2006. Of this total, approximately 3,500 linear feet of channel has both banks located on the property with a minimum of 100 foot wide "no-touch" wooded buffers (the majority of the buffer is 200 feet). Approximately 1,720 linear feet of the left bank of Little Stony Creek is located on NPS land, which will by protected by the agency. The mitigation area for this project is 36.50 acres which includes the "no-touch" buffers. The remaining 16.50 acres may be subject to activities that exclude its appropriateness as compensatory mitigation, but can be viewed as additional protected acreage as they will not be developed.

This property was sold to the National Park Service in 2007. The proceeds from the sale, $170,903.87, have been returned to the general balance of the Fund. The Conservancy anticipates closing this project in 2008.

RO-2 Apple Orchard Mountain (City of Bedford)

The purpose of this project is to conduct stream and the associated upland riparian buffer preservation at the City of Bedford property in Bedford County. The project was initiated by the Western Virginia Land Trust (WVLT) to preserve the pristine stream channels and buffers located on the 13.75 acre parcel. The initial funding for this project was approved by the Corps on June 7, 2005, with a second funding request approved on February 7, 2006. The WVLT acquired the property in 2006 and transferred to the National Park Service (NPS) in 2007. Long-term protection of the project will be achieved through a Corps approved management agreement with NPS. No additional monitoring is required for this project.

The City of Bedford property is located on the Peaks of Otter mountain range. The area provides habitat for the indigenous Peaks of Otter Salamander. Little Stony Creek lies along the eastern edge of the property. Along the majority of the reach, only the right bank of the channel is located on the parcel. The stream channel is in stable condition and requires no restoration or enhancement activities. The project parcel and surrounding properties are pristine, mature, mixed hardwood forests with virtually no disturbances. The project is surrounded on three sides by NPS land. The majority of the watershed is included in the parcel and/or on NPS land, and there is minimal development potential upstream due to the surrounding property's slope and ownership. The site is also adjacent to and north (upstream) of the Edwards project (RO-1).

The Conservancy completed a surface water delineation on April 21, 2005, and determined that 788 linear feet of stream channel is preserved at the site. The Corps confirmed this determination on March 18, 2006. Of this total, approximately 300 linear feet of channel has both banks located on the property with a maximum "no-touch" buffer along the right bank of 50 feet and the buffer width along the right bank of 200 feet. Approximately 488 linear feet of the left bank of Little Stony Creek is located on NPS land, which will by protected by the agency. The mitigation area for this project is 3.96 acres which includes the "no-touch" buffer. The remaining 9.79 acres may be subject to activities that exclude its appropriateness as compensatory mitigation, but can be

viewed as additional protected acreage as they will not be developed.

This property was sold to the National Park Service in 2007. The proceeds from the sale, $19,995.21, have been returned to the general balance of the Fund. The Conservancy anticipates closing this project in 2008.

RO-3 Goose Creek-Roanoke Bedford County site

The purpose of this project is to conduct a non-tidal wetland and stream feasibility study on a property in Bedford County. The area of interest for this mitigation project is approximately 64 acres and includes approximately 3,100 linear feet of South Fork Goose Creek, its adjacent floodplain and low terrace, upland bluff to the north that has a school and associated facilities and a steeper bluff to the south that is forested and contains one small tributary to South Fork Goose Creek. The majority of the site lies between 920 – 900 feet above msl and the pasture areas in the floodplain north and south of Goose Creek are located on a terrace that is 5-10 feet above the present OHW of Goose Creek. These areas contain a mixture of wetland, converted wetland and upland. Sections of the South Fork of Goose Creek have an established forested buffer, while other sections have either no or minimal wooded buffer.

The Conservancy has contracted with a third party to provide a conceptual mitigation plan for this site with respect to four specific areas. Area 1 encompasses an approximately 125-foot buffer on either side of the South Fork of Goose Creek and is approximately 17 acres. There are areas along this ±3,100 linear foot reach where the stream has steep, severely eroding banks and large in-stream sand or gravel bars. Area 2 is approximately 12 acres and includes the southern pasture (±8 acres) and adjacent wetlands and uplands (±4 acres). It is one of two areas with the best opportunities to restore, enhance and establish wetlands. The area is underlain by a mapped hydric soil [Chewacala loam, 0-2% slopes]. This field is actively hayed or cut every year so the vegetation is being maintained as a mixture of emergent wetlands and herbaceous uplands. There is evidence that the area had been used for livestock grazing at some point as there are a few fence lines and the areas of the floodplain left to regenerate naturally had the common weedy species associated with grazing (e.g. Multiflora rose and Autumn olive). An old beaver dam which supported a large wetland feature between the pasture and the forest is identified on the Concept Map at the eastern edge of Area 2. This area contains a mosaic of forested and open/emergent wetlands. The beaver dam blocked the area that drained from west to east along the toe of slope; however, it has been abandoned and there is evidence of drainage. Since the outfall is down cutting to meet the elevation of Goose Creek (which itself has become incised) there is the possibility that it will eventually drain much of the wetlands complex and considerably reduce its size and usefulness as wildlife habitat. Area 3 is located north of Goose Creek and is approximately 8.3 acres in area. This field is in a similar land use as Area 2, and a similar set of strategies could be used to restore and enhance wetlands in each area. Of the two potential wetland restoration areas, this one likely involves a higher risk as the hydrologic inputs are fewer. Area 4 includes a mixture of forested upland and wetland preservation and is approximately 26 acres in area. Much of the forest in this section is intermediate to mature aged hardwoods that would provide a buffer function primarily to the wetlands, but also would expand the buffer to Goose Creek.

The concept plan and feasibility plan were completed in the fall of 2007, indicating that both stream and non-tidal wetland restoration activities are possible. The Conservancy intends to move forward with further project development of this site in 2008.

Shenandoah River Basin

The Shenandoah River Basin is comprised of four HUCs (02070004, 02070005, 02070006, and 02070007) encompassing the headwaters of the Shenandoah River to the Potomac River. This basin is located within the Conservancy's Central Appalachian Forest Ecoregion. Conservation targets include Blue Ridge stream and tributaries, Central Appalachian mixed hardwood forest matrix, cave invertebrate communities, endangered wood turtles, freshwater mussels, and sportfish and nongame fish populations.

The projects discussed in this section serve as mitigation for permitted impacts within the Shenandoah River Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue three mitigation projects in this basin. The Corps has authorized funds for all projects. Each project provides mitigation for permitted impacts to streams. The third project, SH-3/UJ-3 is on a watershed divide and also mitigates for stream impacts within the Upper James Basin, and provides wetland mitigation compensation.

The following table provides a summary of projects for which funds were approved in the Shenandoah River Basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table 29: Approved Project Summary for the Shenandoah River Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized		
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)
SH-1	Cedar Creek (Mowery)	M	9/28/06	0.00	0.00	1,576,000.00
SH-2	Blacks Run Site	M	12/7/06	0.00	0.00	496,535.00
SH-3 / UJ-3	Laurel Fork (Rifle Ridge Farm, LLC)	M	11/19/07	0.00	0.00	1,034,749.00
			Totals	**0.00**	**0.00**	**3,107,284.00**
			Grand Total	**3,107,284.00**		

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following table summarizes the status, proposed mitigation activity type and associated acreage, and proposed credit for each non-tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the Shenandoah River Basin. In addition the table provides the amount of impact acres in the basin, the total mitigation liability in credits, and a measure of the wetland area that is proposed to be replaced through restoration or creation activities in comparison to the amount impacted. The table does not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 30: Non-Tidal Wetland Project Summary for the Shenandoah River Basin.

Project Information		NT Wetland (Ac)			Upland (Ac)		Mitigation	Proposed
Project ID	**Status**	**Rest/Cr**	**Pres**	**Enh**	**Rest**	**Pres**	**Acres**	**Credits**
SH-3 / UJ-3	D,PC		11.00				11.00	1.10
Sub-totals		**0.00**	**11.00**	**0**	**0**	**0.00**	**11.00**	**1.10**

Total Acres of Non-Tidal Impacts	**7.69**
Total Mitigation Liability	**9.41**
Total Proposed Credits	**1.10**
Percent of Wetland Acreage Replacement	**0.0**

LP - Pending finalization of land protection	I - Restoration/Enhancement/Creation activities in progress
P - Planning / permitting	M - Mitigation monitoring
D - Pending delineation / assessment	CA - Corrective actions necessary
	PC - Pending project closure

As noted in Section II, the Fund has been used to mitigate for 12,428 linear feet of permitted stream impacts in the Shenandoah River Basin through 2007. The following table summarizes the status, the protected stream length, and a description of the proposed or completed mitigation activities with the associated channel length for each activity for each stream project pursued by the Conservancy to serve as mitigation for impacts in the Shenandoah River Basin.

Table 31: Stream Project Summary for the Shenandoah River Basin.

Project ID	Project Status	Stream Mitigation Area (ac)	Channel Length in Mitigation Area (lf)	Mitigation Activity Description	Additional Protected Acreage
SH-1	P	16.00	1,700	Riparian buffer planting 200 feet wide along each bank of 1,700 linear feet of Buffalo Marsh Run. Channel banks along this reach stabilized with live stakes.	94.00
SH-2	LP, D, P	16.90	4,745	Priority 1 relocation of 2,200 lf and Priority 2 restoration of 1,175 lf of Blacks Run. Priority 2 restoration along 830 lf of Seibert Creek and along 540 lf of an unnamed tributary to Seibert Creek. Riparian buffer planting ranging from 20 to 200 feet wide along both banks of Blacks Run, 20 to 80 feet wide along both banks of Seibert Creek, and 50 to 110 feet wide along both banks of the unnamed tributary.	0.00
SH-3 / UJ-3	D, PC	475.60	33,915	Riparian buffer preservation along 13,144 lf of the both banks of Laurel Fork, and along left bank of 3,847 lf of Collins Run, and along both banks of 4,563 lf of Buck Creek. Stream system preservation along both banks of 8397 lf of three unnamed tributaries to Laurel Fork; both banks of 2255 lf of an unnamed tributary to Laurel Fork; both banks of 6108 lf of Blights Run; and both banks of 3,046 lf of two unnamed tributaries to Buck Creek.	1,092
Totals		**508.50**	**40,360**		**1,186**

ac - acre
lf - linear feet
LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration / Enhancement activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Buffer widths are sufficient to avoid mitigation value conflicts between wetlands and streams ("double-dipping").

Project Summaries

The following section provides a detailed summary of each project located within the Shenandoah River Basin for which the Corps has authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

SH-1 Cedar Creek (Mowery)

The purpose of this project is to plant a woody riparian buffer and stabilize the stream banks with

live stakes at the Mowery property (also known as the Ogden's Cave project) in Frederick County. The Department of Conservation and Recreation (DCR) Natural Heritage Program identified this site and approached the Conservancy to complete this project through the Fund. The Virginia Cave Conservancy was also involved with securing acquisition of this project. The funding for this project was approved by the Corps on September 28, 2006. The Conservancy proposed to exclude cattle from the stream through the purchase of the property and plant a woody riparian buffer and live stakes along approximately 1,700 linear feet of Buffalo Marsh Run. The Conservancy purchased the 110 acre site on December 27, 2006.

On April 4-5, 2007, thirteen acres within the 200' riparian buffer were planted at this site. A diverse array of bareroot seedings were planted including sycamore (*Platanus occidentalis*), green ash (*Fraxinus pennsylvanica*), cottonwood (*Populus deltoides*), black walnut (*Juglans nigra*), persimmon (*Diospyros virginiana*), and hackberry (*Celtis occidentalis*). Seedlings were planted on ten foot centers for a density of 435 trees per acre. Just under half of the seedlings were planted using four foot Tubex tree shelters and three foot by three foot VisPore mats. The remaining seedlings were straight planted. The trees were planted in rows along the upstream section of the channel while random planting was utilized in the downstream section. In addition to the bare root seedlings, a total of 2,100 live stakes, consisting primarily of black willow *(Salix nigra)*, were planted on approximately three foot centers in two rows along each bank. Herbicide spraying and mowing will be utilized to combat invasive and competing species.

The Conservancy transferred ownership of the property to DCR in December 2007. Funds from that sale were returned to the general balance of the Fund in early 2008 to facilitate future mitigation projects and will be reported in the 2008 annual report. Long-term protection of the site will be accomplished through the dedication of the site as a State Natural Area Preserve. The DCR will manage and oversee the property, as well as, enforce the restrictions placed on the property by the deed of dedication. Stream monitoring events are scheduled for monitoring years 1, 2, 3, 5, 7, and 10, with reports submitted to the Corps.

Buffalo Marsh Run is a major tributary to Cedar Creek, a system the Conservancy has identified as a priority conservation area due to the condition of the watershed and the presence of both wood turtles and freshwater mussels. Although the site does not adjoin other protected lands, there are several other protected sites upstream and downstream of the property. The protection of this site also serves to protect the large karst cave located on the property, as well as, the numerous DCR Natural Heritage elements identified within the cave.

Prior to the Conservancy involvement, nearly the entire property was used to graze cattle, which used the stream as their sole water source. The livestock prevented the colonization of woody vegetation in the pasture and caused stream bank and channel degradation, in addition to decreasing water quality through the direct addition of fecal material. As part of the mitigation activities, the riparian area within 200 feet of each bank was planted with a diverse mixture of native hardwoods, and the banks will be stabilized through the planting of live stakes for the entire length (approximately 1,700 linear feet) of the channel. In addition, the cattle will be removed from the stream and buffer area through the deed of dedication. The mitigation area for the project is 16 acres, which includes the "no-touch" buffer. The remaining 94 acres will be managed at DCR's discretion and may be subject to activities that exclude its appropriateness as compensatory mitigation, but can be viewed as additional protected acreage as they will not be developed.

By excluding the livestock, the Conservancy will significantly enhance the stream system by removing a major factor contributing to stream instability and poor water quality. By removing

the cattle and planting the vegetation, the stream banks should re-stabilize, reducing sedimentation in the channel and increasing overall habitat. These measures are all that is necessary to restore stream function and improve water quality at this site.

The live stake and riparian buffer was completed in spring of 2007. Year one monitoring will be completed during 2008.

SH-2 Blacks Run Site

The purpose of this project is to conduct stream restoration activities at a park in the City of Harrisonburg. The Canaan Valley Institute (CVI) identified this site and approached the Conservancy for completing this project through the Fund. The funding for this project was approved by the Corps on December 7, 2006. The Conservancy proposed to conduct restoration activities along approximately 3,375 linear feet of Blacks Run, 830 linear feet of Seibert Creek, and 540 linear feet of an unnamed tributary to Seibert Creek. The City of Harrisonburg will donate a conservation easement on the riparian corridors (16.90 acres) on the property to be held by Valley Conservation Council (VCC). The Conservancy anticipates this donation to occur in 2008. Long-term protection of the site will be accomplished through the monitoring and enforcement of the easement by the VCC. The schedule for the stream monitoring and reporting events will be finalized through the permitting process.

The CVI identified this project through their association with the local watershed group, the Friends of Blacks Run Greenway. This group identified this stream reach as a priority site to address sedimentation problems in the watershed. City officials have also expressed concerns with the erosion and sedimentation problems at the site, and are fully supportive of the restoration project. Over ten miles of Blacks Run are currently listed as a Virginia Department of Environmental Quality 303d listed stream, including the reach through Purcell Park. Restoration at this site can address some of the non-point sources identified as causes, urban and human. As part of the Shenandoah-Potomac drainage and the Chesapeake Bay watershed, this project contributes to water quality improvement goals set for the Bay. The City, the Friends of Blacks Run Greenway, and CVI are interested in showcasing natural stream channel design restoration activities to other landowners, having the site serve as a demonstration and educational project and will actively campaign to have this project serve as a catalyst for additional stream projects in this watershed.

Blacks Run is currently incised due to a headcut that is moving upstream through the project site. The stream is not able to access the floodplain during bankfull events, leading to additional incision and bank erosion. If the restoration project is not completed, the stream will likely continue to degrade. The mitigation activities include the Priority 1 relocation (approximately 2,200 linear feet) and Priority 2 restoration (approximately 1,175 linear feet) of Blacks Creek and the Priority 2 restoration of Siebert Creek (approximately 830 linear feet) and the unnamed tributary (approximately 540 linear feet). The riparian buffer area will be planted with woody species for a width ranging from approximately 20 feet to 200 feet along each bank of all of the channels.

The Conservancy anticipates that the easement will be finalized in early 2008, and the restoration implemented in the fall of 2008.

SH-3 / UJ-3 Laurel Fork (Rifle Ridge Farm, LLC)

The purpose of this project is to preserve considerable stream length and stream systems as well

as approximately 11 acres of wetlands on the Rifle Ridge Farm, LLC property in Highland County. The Conservancy had been working with the landowner for many years to finalize the preservation of this 1,683 acre tract along Laurel Fork. The Conservancy was able to purchase an easement on this property through use of the Fund. The funding for this project was approved by the Corps on November 19, 2007. Easement terms protect the numerous stream systems on the property within a 100' or greater riparian buffer through most of the property. Long-term protection of the site will be accomplished through the monitoring and enforcement of the easement by the Conservancy.

Laurel Fork is an exemplary, high elevation cold water stream that drains into the Shenandoah, providing habitat for native brook trout (*Salvelinus fontinalis*) populations, and other characteristic aquatic species. Laurel Fork has been identified by TNC as a Central Appalachian Forest Portfolio site as well as an aquatic portfolio site. It encompasses over 53,000 acres and contains over 60 extant Heritage species and four terrestrial community types. Less than half a mile downstream of Rifle Ridge, the portion of Laurel Fork that flows into and through the George Washington and Jefferson National Forest is designated a tier 3, state Scenic River. The property contains several records of Heritage element species or community types as identified by the Department of Conservation and Recreation, Division of Natural Heritage, including pearly everlasting (*Anaphalis margaritacea*), a G5S1 species; bunchberry (*Cornus Canadensis*), a G5S1 species; narrow-panicled rush (*Juncus* brevicaudatus), a G5S2 species; purple oat-grass (*Schizachne purpurascens)*, a G5S1 species; ground juniper (*Juniperus communis var. depressa)*, a G5T5S1 species; Fraser's marsh St. John's-wort (*Triadenum fraseri*), a G5S1 species; and High-elevation Cove Forest and Spruce/Fir (S1) terrestrial community types. There are at least six other species that are listed on the Department of Conservation and Recreation, Division of Natural Heritage's Watchlist, which are considered somewhat more abundant. The taxa identified are more common north of Virginia and are globally secure species. Their rarity in Virginia is tied closely to the natural distribution of these species and their restriction to cooler microclimates and higher elevations.

Laurel Fork is the major stream system on the property with over two miles and both banks being preserved through this easement. Three unnamed tributary systems are included within the mitigation area on this property with stream length along both banks approximately 8,397 lf. Another unnamed tributary is protected along one bank for a length of 2,255 lf. Collins Run and Blights Run also have significant length protected as mitigation acreage. One bank along 3,847 lf of Collins Run and 6,108 lf along both banks of Blights Run are protected. Two unnamed tributary systems with stream lengths of approximately 3,046 are protected along both banks. As this property falls along a watershed divide there is stream mitigation acreage in the Upper James River basin also. Within the Upper James watershed, there are approximately 4,563 lf of both banks along Buck Creek that are considered within the mitigation area. The buffers within all of the mitigation acreage, totaling approximately 475.6 acres within the Shenandoah River basin and 104.6 acres within the Upper James River Basin are all comprised of existing, mature wooded buffers.

There is approximately 11 acres of riparian wetland systems along the banks of Laurel Fork. These wetlands serve as compensation through preservation and are protected by the easement terms.

The entire stream length on the property and the wetland acreage must be determined through assessment prior to project closure. The Conservancy anticipates completing this in 2008. The easement on the property will be monitored annually by the Conservancy.

Tennessee River Basin

The Tennessee River Basin is comprised of six HUCs (06010205, 06010206, 06010101, 06010102, 05070201, and 05070201) encompassing the headwaters of the Clinch, Holston, and Powell Rivers draining south into Tennessee. This basin is located within the Conservancy's Cumberland and Southern Ridge Valley Ecoregion. Conservation targets include endemic mussels and associated assemblages, Appalachian bogs, fens and seeps, Southern Appalachian forest matrix, upper Tennessee fish community, bats, karst communities, calcareous river-fronting slope communities and limestone and dolomite barrens.

The projects discussed in this section serve as mitigation for permitted impacts within the Tennessee River Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue four mitigation projects in this basin. The Corps has authorized funds for all of these projects. Two projects (TN-1 and TN-2) provide mitigation for permitted impacts to streams, and one project (TN-3) provides mitigation for permitted impacts to non-tidal wetlands. The fourth project (TN-4) involves the authorization of funds to conduct a real estate appraisal of a property to pursue a potential stream and non-tidal wetland mitigation project. Three of these projects were closed in 2007, TN-1, TN-3, and TN-4.

The following table provides a summary of projects for which funds were approved in the Tennessee River Basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table 32: Approved Project Summary for the Tennessee River Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized			Closed Projects
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)	Funds Returned Upon Closure ($)
TN-1	Gray's Island (Holston Land Company)	M	3/14/97	0.00	0.00	7,000.00	0.00
TN-2	Barns Chapel (Garry Smith Enterprises, Inc.)	M	3/28/06	0.00	0.00	305,000.00	N/A
TN-3	Barns Chapel (Atwell)	M	3/28/06	39,000.00	0.00	0.00	1,366.34
TN-4	Upper Clinch River Site	A	4/23/06	3,000.00	0.00	3,000.00	0.00
			Totals	**42,000.00**	**0.00**	**315,000.00**	
			Grand Total	**357,000.00**			

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following table summarizes the status, proposed mitigation activity type and associated acreage, and proposed credit for each non-tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the Tennessee River Basin. In addition the table provides the amount of impact acres in the basin, the total mitigation liability in credits, and a measure of the

wetland area that is proposed to be replaced through restoration or creation activities in comparison to the amount impacted. The table does not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 33: Non-Tidal Wetland Project Summary for the Tennessee River Basin.

Project Information		NT Wetland (Ac)			Upland (Ac)		Mitigation	Proposed
Project ID	**Status**	**Rest/Cr**	**Pres**	**Enh**	**Rest**	**Pres**	**Acres**	**Credits**
TN-3	C			4.01		2.11	6.12	1.44
Sub-totals		**0.00**	**0**	**4.01**	**0**	**2.11**	**6.12**	**1.44**

Total Acres of Non-Tidal Impacts	**16.26**
Total Mitigation Liability	**24.62**
Total Proposed Credits	**1.44**
Percent of Wetland Acreage Replacement	**0.0**

LP - Pending finalization of land protection	I - Restoration/Enhancement/Creation activities in progress
P - Planning / permitting	M - Mitigation monitoring
D - Pending delineation / assessment	CA - Corrective actions necessary
C - Project closed	PC - Pending project closure

As noted in Section II, the Fund has been used to mitigate for 5,359 linear feet of permitted stream impacts in the Tennessee River Basin through 2007. The following table summarizes the status, the protected stream length, and a description of the proposed or completed mitigation activities with the associated channel length for each activity for each stream project pursued by the Conservancy to serve as mitigation for impacts in the Tennessee River Basin. The table does not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 34: Stream Project Summary for the Tennessee River Basin.

Project ID	Project Status	Stream Mitigation Area (ac)	Channel Length in Mitigation Area (lf)	Mitigation Activity Description	Additional Protected Acreage
TN-1	C	15.50	6,000	Riparian buffer preservation of 4,000 lf along the right bank of the Clinch River and 2,000 lf along both banks of Cub Creek with an existing mature wooded buffer ranging from 75 to 100 feet wide. Livestock exclusion fencing installed to protect the same reaches of the Clinch River and Cub Creek.	284.50
TN-2	D, P	6.70	1,580	Priority 1 relocation of 1,580 lf of Rattle Creek. Riparian buffer planting ranging from 35 to 250 feet along each bank for the length of the channel. Reconfiguration of an off-line pond and buffer plantings approximately 25 feet wide from the pond. Livestock exclusion fencing installed to protect 1,580 linear feet of the stream and the pond.	0.00
	Totals	**22.20**	**7,580**		**284.50**

ac - acre
lf - linear feet
LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration / Enhancement activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Buffer widths are sufficient to avoid mitigation value conflicts between wetlands and streams ("double-dipping").

Project Summaries

The following section provides a detailed summary of each project located within the Tennessee River Basin for which the Corps has authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

TN-1 Gray's Island (Holston Land Company)

The purpose of this project is to exclude livestock and preserve an existing mature forested upland buffer along two stream channels at the Gray's Island site located in Scott County. The funding for this project was approved by the Corps on March 14, 1997. The Conservancy

proposed to install livestock exclusion fencing and preserve a mature wooded buffer along 6,000 linear feet of the Clinch River and Cub Creek. The property was originally purchased by the Conservancy on October 24, 1995. The site is currently owned by a private individual, with a conservation easement held and monitored by the Conservancy. Long-term protection of the site is accomplished through the monitoring and enforcement of the easement by the Conservancy. No additional monitoring is required for this project.

The project was originally pursued by the Conservancy to achieve conservation efforts at Gray's and Simone's Islands, significant sites for freshwater mussels including the following federally endangered species: fin-rayed pigtoe *(Fusconaia cuneolus)*; shiny pigtoe *(Fusconaia cor)*; Appalachian monkeyface *(Quadrula sparsa)*; rough rabbits foot *(Quadrula cylindrical)*; and birdwing pearly mussel *(Lemiox rimosus).*

The property is approximately 300 acres of prime farmland, bordered by the right bank of the Clinch River (approximately 4,000 linear feet). Both banks of Cub Creek (approximately 2,000 linear feet of stream channel) are also located on the property. Livestock originally had access to both the Clinch River and Cub Creek, which contributed to stream bank degradation, in addition to decreasing water quality through the direct addition of fecal material.

In 1997, the Conservancy installed 6,000 linear feet of livestock exclusion fencing to permanently remove the livestock from 4,000 linear feet of the right bank of the Clinch River and from 2,000 linear feet of both banks of Cub Creek. The fencing was placed a minimum of 75 feet from each bank. The project also preserved the existing mature forest buffer along both reaches. Additional riparian buffer planting was not required as the banks were already forested by mature hardwoods composed of predominantly oak, maple, and hickory species. Since the fencing was installed, the buffer is developing a multi-story canopy and Cub Creek is showing signs of re-stabilizing within the channel. The mitigation area for the project is 15.50 acres, which includes the "no-touch" buffer. The remaining 284.50 acres may be subject to activities that exclude its appropriateness as compensatory mitigation, but can be viewed as additional protected acreage as they will not be developed.

The installation of alternate water sources, and additional fencing work at the site, was funded by the Tennessee Valley Authority. The Conservancy requested project closure of this site and it was officially closed in July 2007.

TN-2 Barns Chapel (Garry Smith Enterprises, Inc.)

The purpose of this project is to conduct stream restoration activities and exclude livestock from a stream and pond at the Smith property located near Abingdon in Washington County. The funding for this project was approved by the Corps on March 28, 2006. The Conservancy proposed to install livestock exclusion fencing, reconfigure a small pond, and conduct Priority 1 relocation on approximately 1,580 linear feet of Rattle Creek located on the property. The landowner donated a conservation easement, which is held by the Conservancy, on the riparian corridor and the area surrounding an off-line pond (total of 6.70 acres of "no-touch" area) on April 26, 2006. Long-term protection of the site is accomplished through the monitoring and enforcement of the easement by the Conservancy. The schedule for the stream monitoring and reporting events will be finalized through the permitting process.

The Conservancy has identified the Barns Chapel Portfolio Conservation Area as a critical area for protection. The Smith property is located adjacent to and upstream of the Atwell project (TN-3). The Atwell site consists of six acres of an existing calcareous seep bog that provides habitat

for showy lady's slipper, and seven widely disjunct species, five reported new for Southwest Virginia in 1989. In addition to significantly enhancing the stream system by removing a major factor contributing to stream instability and poor water quality, reconnecting the stream to its historical floodplain, and re-establishing the degraded wetlands, the restoration project at the Smith property will also protect the resources on the Atwell site.

Prior to the Conservancy involvement, the entire property was used to graze cattle, which used the stream as their sole water source and contributed to the degradation of the wetlands. The channel is incised with many areas of significant erosion along the banks. The deepened channel has also helped to drain the existing wetlands at the site by lowering the water table. In addition to the traditional drainage methods that have been implemented in the floodplain, which include drainage ditches and subsurface drainage, the channel incision has resulted in further lowering of the water table and loss of wetland hydrology and function.

The mitigation activities for this project include the Priority 1 relocation of approximately 1,580 linear feet of Rattle Creek which will also enhance the existing four acres of wetlands along the banks, the reconfiguration of a farm pond to ensure the site success, and the removal of cattle from all three resources at the site. The pond and both banks of the channel will be buffered with woody vegetation ranging from 35 to 250 feet. Due to the limited buffer width at the site, this project is considered solely a stream mitigation project.

The Conservancy installed approximately 2,500 linear feet of livestock exclusion fencing at the site on August 8, 2006. A delineation of surface waters and wetlands on the property was conducted in 2006 and confirmed by the Corps in 2007. The construction of the Priority 1 relocation along Rattle Creek was conducted in fall 2007. Three alternate water source structures were installed as well. Live stakes were planted following constructions and the remaining riparian buffer will be planted in early 2008.

TN-3 Barns Chapel (Atwell)

The purpose of this project is to conduct a non-tidal wetland enhancement project at the Atwell property located near Abingdon in Washington County. The funding for this project was approved by the Corps on March 28, 2006. The Conservancy proposed to install livestock exclusion fencing around the 6.12 acre property to preserve and enhance approximately four acres of wetlands at the site. The Conservancy purchased the parcel on May 17, 2006. Long-term protection of the site is accomplished through the ownership by the Conservancy. No additional monitoring is required for the project.

The Conservancy has identified the Barns Chapel Portfolio Conservation Area as a critical area for protection. The site consists of approximately six acres of an existing calcareous seep bog that provides habitat for showy lady's slipper, and seven widely disjunct species, five reported new for Southwest Virginia in 1989. Rattle Creek forms the western boundary of the calcareous seepage bog and the swamp itself is formed by approximately five spring heads that drain across a relatively flat floodplain into the stream. Prior to the Conservancy's involvement, cattle had full access to both the stream and calcareous seep bog. The site is also adjacent to and north (downstream) of the Smith (TN-2) stream restoration project. The Smith restoration project will aid in protecting the resources on the Atwell property.

A delineation of surface waters and wetlands on the property was conducted on July 18, 2006, and confirmed in October, 2007. Approximately 4.47 acres of wetlands were identified on the

property. Much of this area is floodplain wetland associated with Rattle Creek and the associated seeps and tributaries that entered Rattle Creek from the eastern edge. Dominant species in the swamp include *Thuja occidentalis, Fraxinus pennsylvanicum, Hypericum densiflorum, Carex spp. and Typha latifolia*. The remaining uplands are primarily comprised of mixed pine – hardwood forest. Approximately 1,260 linear feet of Rattle Creek is located within the property boundary. However, due to the limited upland buffer width, this project is considered solely a wetland mitigation project.

The Conservancy installed approximately 1,150 linear feet of livestock exclusion fencing at the site on August 14, 2006. By excluding the livestock, the Conservancy will protect the resources at the site from additional degradation by the cattle. The Conservancy requested closure of this project in 2007. It was officially closed in November 2007 and credited with 1.44 acres of wetland mitigation credit. Unspent funds in the amount of $1,366.34 were returned to the general balance of the Fund.

TN-4 Upper Clinch River Site

The purpose of this project is to conduct a real estate appraisal of this approximate 120 acre property for a potential stream and non-tidal wetland restoration/enhancement project. The site is bordered by the Clinch River. The funding for this appraisal was approved by the Corps on April 23, 2006. Negotiations with the landowners were unsuccessful and this project was closed without delivering any mitigation in July 2007. All authorized funds were utilized for this project.

York River Basin

The York River Basin is comprised of three HUCs (02080105, 02080106, and 02080107) encompassing the headwaters of the Mattaponi, Pamunkey and York Rivers draining east into the Bay. This basin is located within both the Conservancy's Piedmont and Chesapeake Bay Lowland Ecoregions. Conservation targets include tidal freshwater systems, small Piedmont streams and tributaries, bald cypress forests, anadromous fishes, migratory land birds and raptors, seepage wetlands, Coastal Plain mixed pine-hardwood forest matrix, and calcareous forests.

The projects discussed in this section serve as mitigation for permitted impacts within the York River Basin for which the Fund was used as compensatory mitigation. Through 2007, the Conservancy has requested funds to pursue ten mitigation projects in this basin. The Corps has authorized funds for all ten projects. Two projects (YK-3 and YK-8) provide mitigation for permitted impacts to both non-tidal wetlands and streams, five projects (YK-1, YK-2, CB-8/YK-4, and YK-7, YK-10)) provide mitigation for permitted impacts to non-tidal wetlands, and one project (YK-9) provides mitigation for permitted impacts to streams.

One project (YK-5) provides funds to complete a feasibility study to assess the mitigation potential of this site to address permitted impacts to non-tidal wetlands, tidal wetlands, and streams within this basin. The final project (YK-6) involved the authorization of funds to conduct a real estate appraisal of a property to pursue potential a stream and non-tidal wetland mitigation project. The Conservancy is in negotiations with the landowner concerning the potential to purchase an easement for project YK-6.

Due to the location of the site, one of the projects (CB-8/YK-4) mitigates for impacts within both the York River Basin and the Chesapeake Bay Basin. The total funds authorized by the Corps and crediting value for this project have been appropriately divided between the two basins.

The following table provides a summary of projects for which funds were approved in the York River Basin. The table includes the project name and corresponding identification number, proposal information (purpose of the request for funding, date the funds were authorized by the Corps), and the amount of funds authorized by the Corps based on resource type. A detailed summary of each project is included in the section below.

Table 35: Approved Project Summary for the York River Basin.

Project ID	Project Name	Purpose of Proposal	Corps Approval Date	Funds Authorized		
				Non-Tidal Wetland Projects ($)	Tidal Wetland Projects ($)	Stream Projects ($)
YK-1	Po River (Leonard)	M	3/28/03	40,000.00	0.00	0.00
YK-2	Mattaponi River (Gwathmey 1)	M	2/5/04	50,000.00	0.00	0.00
		M	2/20/04	909,200.00	0.00	0.00
YK-3	Dragon Run (Beldon)	M	8/5/04	43,800.00	0.00	43,800.00
CB-8 / YK-4	Upper Crab Neck (BP North America)	M	4/21/05	7,500.00	0.00	0.00
			2/22/07	1,068.00	0.00	0.00
YK-5	Cumberland Marsh (Healthvest, Inc.)	F	7/1/05	12,500.00	0.00	12,500.00
			2/22/07	73,375.00	1,000.00	223,125.00
YK-6	Mattaponi River Site	M	8/12/05	45,300.00	0.00	30,200.00
		M	5/2/06	6,570.00	0.00	4,380.00
YK-7	Mattaponi River (Gwathmey 3)	M	6/22/06	22,145.00	0.00	0.00
YK-8	Mattaponi River (Bach 1)	A	8/11/06	6,500.00	0.00	0.00
		M	12/15/06	192,100.00	0.00	33,900.00
YK-9	Mattaponi River Site	M	12/15/06	0.00	0.00	14,077.00
YK-10	Mattaponi River (Bach 2)	M	8/10/07	17,567.00	0.00	0.00
			Totals	**1,427,625.00**	**1,000.00**	**361,982.00**
			Grand Total	**1,790,607.00**		

M - Mitigation (may include A, AC, C, BS); A - Real Estate Appraisal; AC - Acquisition; C - Conceptual Plan Development; F - Feasibility Study; BS - Boundary Survey

The following table summarizes the status, proposed mitigation activity type and associated acreage, and proposed credit for each non-tidal and tidal wetland project pursued by the Conservancy to serve as mitigation for impacts in the York River Basin. In addition, the table provides the amount of impact acres in the Basin, the total mitigation liability in credits, and a measure of the wetland area that is proposed to be replaced through restoration or creation activities in comparison to the amount impacted. The table does not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 36: Non-Tidal Wetland Project Summary for the York River Basin.

Project Information		NT Wetland (Ac)			Upland (Ac)		Mitigation	Proposed	Additional
Project ID	Status	Rest/Cr	Pres	Enh	Rest	Pres	Acres	Credits	Protected Acreage
YK-1	D,PC		6.10			13.90	20.00	1.31	
YK-2	M	67.50	48.57	2.50	33.00	53.43	205.00	78.06	
***YK-3**	PC		2.11			2.15	4.26	0.32	34.32
CB-8/YK-4	PC		67.40			74.80	142.20	10.48	
YK-5*	P, I	1.90						1.90	
YK-7	LP	1.74			2.01	6.67	10.42	2.21	
***YK-8**	D		103.00			50.18	153.18	12.81	
YK-10	LP							0.00	128.00
Sub-totals		**71.14**	**221.08**	**2.50**	**35.01**	**201.13**	**535.06**	**107.08**	**162.32**

Total Acres of Non-Tidal Impacts	**9.07**
Total Mitigation Liability	**17.24**
Total Proposed Credits	**107.08**
Percent of Wetland Acreage Replacement	**784.3**

LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration/Enhancement/Creation activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes stream or tidal wetland mitigation.

Table 37: Tidal Wetland Project Summary for the York River Basin.

Project Information		Tidal	Tidal	Tidal	Mitigation	Proposed
Project #	Status	Rest	Enh	Pres	Acres	Credits
YK-5	P,I	3.40			3.40	3.40
Acre Sub-totals		**3.40**	**0.00**	**0.00**	**3.40**	**3.40**
Credit Sub-totals		**3.40**	**0.00**	**0.00**		

Total Acres of Tidal Impacts	**0.00**
Total Mitigation Liability	**0.00**
Total Proposed Credits	**3.40**
Percent of Wetland Acreage Replacement	**N/A**

LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration/Enhancement/Creation activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

As noted in Section II, the Fund has been used to mitigate for 1,282 linear feet of permitted stream impacts in the York River Basin through 2007. The following table summarizes the status, the protected stream length, and a description of the proposed or completed mitigation activities with the associated channel length for each activity for each stream project pursued by the Conservancy to serve as mitigation for impacts in the York River Basin. The table does not include projects for which funding was approved for initial expenditures such as land appraisals, boundary surveys, feasibility studies, or concept plan development.

Table 38: Stream Project Summary for the York River Basin.

Project ID	Project Status	Stream Mitigation Area (ac)	Channel Length in Mitigation Area (lf)	Mitigation Activity Description	Additional Protected Acreage
YK-3*	PC	7.42	978	Riparian buffer preservation of 978 lf along the right bank of Dragon Run with an existing mature wooded buffer extending 200 feet from the edge of the protected stream and wetland complex.	Reported under the wetlands summary
YK-5*	P,I	8.0	5,800	Dam removal and stream restoration of 2,200 lf of channel and riparian buffer restoration along 3.600 lf along Holt's Creek the and Pamunkey River.	0.00
YK-8*	D	21.70	4,750	Riparian buffer preservation of 2,650 lf along the right bank of the Mattaponi River with a 200 foot wide existing mature wooded buffer. Riparian buffer preservation of 2,100 linear feet along both banks of two unnamed tributaries with a 200 foot wide existing mature wooded buffer.	0.00
YK-9	D	182.00	11,500	Riparian buffer preservation of 11,500 lf along the right bank of the Mattaponi River with an existing mature wooded buffer ranging from 175 to 1,400 feet wide.	132.72
Totals		**219.12**	**23,028**		**132.72**

ac - acre
lf - linear feet
LP - Pending finalization of land protection
P - Planning / permitting
D - Pending delineation / assessment
I - Restoration / Enhancement activities in progress
M - Mitigation monitoring
CA - Corrective actions necessary
PC - Pending project closure

* Project includes wetland mitigation.

Additional Protected Acreage refers to acreage included under the protective instrument placed on the property by the program which does not qualify for mitigation due to specified allowable activities (e.g., silviculture, agriculture).

Buffer widths are sufficient to avoid mitigation value conflicts between wetlands and streams ("double-dipping").

Project Summaries

The following section provides a detailed summary of each project located within the York River Basin for which the Corps has authorized funds through 2007. The summaries include a description of the mitigation activities, partnering opportunities, long-term protection measures, conservation and ecological benefits, and current status of each project.

YK-1 Po River (Mattaponi/York Rivers)

The purpose of this project is to conduct a non-tidal wetland and upland buffer preservation project at the Po River property in Spotsylvania County. The funding for this project was approved by the Corps on March 28, 2003. The property was purchased by the Central Virginia Battlefields Trust (CVBT) and placed under easement in February of 2003. The easement is held and monitored by the Virginia Department of Conservation and Recreation (DCR). Long-term protection will be achieved in accordance with the conservation easement. No additional monitoring is required for this project.

In addition to the water quality benefits inherent to wetland preservation, the protection of wetlands and uplands on this parcel located adjacent to the Po River assists in conservation efforts for the threatened Dwarf wedge mussel which has been identified downstream of the site. Based on a delineation of surface waters and wetlands conducted on the site in December 2006, the property contains approximately 6.1 acres of wetlands and 13.9 acres of forested uplands. The project will be closed pending confirmation of the delineation.

YK-2 Mattaponi (Gwathmey)

The purpose of this project is to conduct a non-tidal wetland and upland buffer restoration, wetland enhancement and wetland and upland preservation project at the Gwathmey project in King William County. The initial funding for this project was approved by the Corps on February 5, 2004. The Gwathmey project located off of State Route 600 includes two separate parcels including the Midway parcel and the Meadow Farm parcel. These parcels were originally placed under easement by the Virginia Outdoors Foundation in June of 2001; however, the Conservancy placed a more restrictive conservation easement on the parcels on April 12, 2004, that increased protection by eliminating farming or logging and allowing for restoration. Long-term protection will be achieved in accordance with the conservation easement which is held and monitored annually by the Conservancy.

As a result of historical sand and gravel mining activities at the 97-acre Midway parcel there is a 39.3-acre lake, which is the central feature of the parcel, although it contains forested upland and frontage along the Mattaponi River. A wetland delineation that was confirmed by the Corps on October 20, 2005 identified approximately 44 acres of wetlands on the Midway property consisting largely of open water in the borrow pit, although lacustrine emergent wetlands exist around the edge of the lake. Despite its origin as a human-made feature, waterfowl utilize the lake frequently and the wooded uplands along the Mattaponi River are suitable American eagle nesting habitat. In addition to preservation of wetlands and uplands, initial planning identified the opportunity for habitat enhancement through the creation of wetland benches on the lake that support emergent wetlands and re-foresting the upland areas adjacent to the lake. Because the wetland mitigation activities on the Meadow Farm parcel have the greatest likelihood of success and the greatest potential ecological benefits, emphasis has been placed upon completing these activities and it is unlikely that further wetland mitigation work at Midway parcel will be proposed.

The Meadow Farm parcel contains 106 acres of agricultural fields including converted wetlands and uplands. This project is located on an abandoned river terrace that is underlain primarily by poorly drained soils. In order to facilitate farming the site had been ditched and shallow swales were created at field breaks that drained to the field edges. This was effective at removing much of the surface water. A primary goal of the Meadow Farm parcel project is to restore a mixture of wetland types (67.5 acres) and upland mixed hardwood forest (33 acres). The site construction activities were conducted January – March 2006 and included blocking field ditching, eliminating or modifying other site drainages, and grading in certain locations to establish appropriate elevations suitable to support wetlands. The majority of the site was prepared for planting either by disking and/or plowing and use of a subsoil de-compaction method (ripping). Approximately 54,050 bare-root seedlings composed of 13 different native, woody species will be installed in early spring of 2007. A pre-emergent herbicide regimen is being used to reduce weedy competition during early establishment of the woody vegetation. First year monitoring of the site found that a majority (9 of 12) of the automated groundwater monitoring wells met the criteria for wetland hydrology. Despite the dry conditions in 2007, a majority of the wetland restoration area still met wetland hydrology requirements. Survival of planted tree species met success criteria

(400 stems per acre or greater) in 14 of the 37 sample sites. The pre-emergent herbicide regime to control the weeds on the property could have effected tree survival rates in certain areas and the data collected on herbaceous vegetation within those plots. Late growing season observation of re-sprouting of dead trees indicates that the planting may recover in these areas. Continued monitoring of tree survival will indicate if corrective actions are necessary. The site is on a monitoring schedule until 2016 with reports being submitted to the Army Corps of Engineers..

YK-3 Dragon Run (Beldon)

The purpose of this project is to conduct non-tidal wetland, stream, and the associated upland riparian buffer preservation at the Beldon property in King and Queen County. The initial funding for this project was approved by the Corps on August 5, 2004. The Conservancy purchased the site on October 4, 2004 and transferred it to a conservation buyer in 2007. Long-term protection of the site will be achieved in accordance with the deed restriction. No additional monitoring is required for this project.

The Beldon tract is located off of State Route 602 in King and Queen County. The Beldon tract is primarily upland with moderate slopes that are dominated by mixed pine-hardwood forest. A delineation of surface waters was conducted by the Conservancy and approved by the Corps in 2006. Approximately 2.11 acres of wetlands and 978 linear feet of stream channel (right bank only) were identified. The majority of the wetlands (~ 1.73 acres) are located along the southern boundary of the property where there is a natural drainage supporting forested wetlands along the right bank of the stream. A 200 foot "no touch" buffer along the right bank of this feature (7.42 acres) will be maintained from the outside limits of the stream and wetland system. A small (0.38 acre) depressional pool was found near State Route 602 and was perhaps a result of the road blocking the natural drainage. This wetland likely supports habitat for amphibian species due to the fact that it appears to drawn down regularly, which inhibits the establishment of predaceous fish populations. A 200 foot buffer will be maintained around this feature (2.15 acres). The remaining 34.32 acres may be subject to activities that exclude its appropriateness as compensatory mitigation, but can be viewed as additional protected acreage as they will not be developed.

In previous reports, the Beldon project was tracked in the Chesapeake Bay Basin; however, because the aquatic resources on the site that are used for mitigation occur within the watershed of a tributary of the Mattaponi, the site should be considered as mitigation for the York River Basin. This site was sold subject to deed restrictions in 2007. Proceeds from the sale, $65,000 were returned to the general balance of the Fund. The Conservancy will request official closure of this project in 2008.

CB-8/YK-4 Upper Crab Neck (BP America)

The details of this project are included under the Chesapeake Bay River Basin summary.

YK-5 Cumberland Marsh (Healthvest, Inc.)

The purpose of this project is to conduct a feasibility study, and subsequently to conduct non-tidal wetland, tidal wetland, and stream restoration at the Cumberland Marsh Preserve in New Kent County. The funding request to complete a feasibility study for the site was approved by the Corps on July 1, 2005. The funding request for restoration costs was approved by the Corps on February 22, 2007. The Conservancy has owned and managed the preserve since December 28, 1993. Long-term protection of the site is achieved through ownership by the Conservancy.

This 1,094-acre preserve is located on the southern bank of the Pamunkey River, and also contains Holt's Creek and the associated tributaries. The preserve is a mixture of freshwater tidal marsh, streams, non-tidal wetlands, open water, and wooded upland. In addition to important habitat for migratory waterfowl, there is also a large population of the rare, federally endangered sensitive joint vetch (*Aeschynomene virginica*) identified at the site. There are currently two earthen dams located at the preserve, which are effectively blocking an unnamed tributary to Holt's Creek creating two separate impoundments. In recent years, the downstream impoundment has been partially compromised during several heavy rain events, which has led to the dam exhibiting very unstable conditions. In addition, the outfall of the upstream impoundment has developed a severe head cut, which is threatening the impoundment and surrounding wetlands.

There are currently two dams located at the preserve. The dams are effectively blocking an unnamed tributary to Holt's Creek creating two separate impoundments. The Conservancy estimates that the dams were installed at least 30 years ago, and impound runoff from an approximate 90 acre watershed. Both dams are earthen structures, with the upstream dam approximately 10 feet in height with a crest length of approximately 150 feet, and the downstream dam approximately 8 feet in height and a crest length of approximately 400 feet. Both of the dams are vegetated with trees and neither has an over topping protection or emergency spillway outlet structure for storm events.

The upper impoundment area is approximately one acre, and the downstream impoundment area is approximately 7.3 acres. Water depths in the upstream and downstream impoundments range from approximately 0 to 8 feet and 0 to 13 feet, respectively. The larger, downstream impoundment is 0.50 mile long and 500 feet wide at its widest point.

Approximately 2.15 acres of jurisdictional wetlands have been identified at the site. These wetlands surround both impoundments with the community consisting of both emergent wetlands in the upper section of the upstream impoundment to a predominantly scrub-shrub wetland in the downstream areas. A small emergent and scrub-shrub wetland area connects the two impoundments (also the location of two beaver dams). These wetland areas are primarily concentrated to a fringe from approximately two to ten feet from the impounded waters. An upland wooded area with mature tress and scrub brush surrounds the fringe wetlands. Three small headwater tributaries feed the upstream impoundment. All three tributaries are in very stable condition and will likely be used as reference reaches to develop the final design for the restoration of the stream channel.

In recent years, the downstream impoundment has been partially compromised during several heavy rain events, which has led to the dam exhibiting very unstable conditions. In addition, the outfall of the upstream impoundment has developed a severe head cut, which is threatening the impoundment and surrounding wetlands.

Holt's Creek enters the Pamunkey River several thousand feet downstream of the current impoundments. The right bank of the creek is fringed with mature trees of varying buffer widths ranging from approximately 50 feet to over 100 feet. Beyond the wooded buffer, the land is used for active farming. The right bank of the Pamunkey River borders the other side of these fields. The river is also buffered with a fringe of trees with a similar buffer width.

The field survey work for the feasibility study was completed from October 22 to 26, 2006. The recommended alternative for the site is the complete removal of both dams. The complete

removal of both structures will allow for the complete restoration of the impounded tributary to a free flowing system and allow for the maximum restoration of tidally influenced wetlands near the lower impoundment. The suggested alternative also provides the greatest likelihood of success with increased long term stability and greatly reduces the potential for any future erosion and sedimentation problems associated with the stream channel. In addition, this alternative retains the maximum acreage of existing wetlands.

The proposed restoration will create approximately 3.4 acres of tidally influenced wetlands within the lower impoundment by filling and grading the area to the appropriate elevation. The areas adjacent to the stream channel are expected to redevelop as fringe emergent and scrub-shrub wetlands (approximately 0.8 acres of tidal wetlands), similar to those that currently exist adjacent to each impoundment. In addition to these wetlands, the proposed activities will result in approximately 1.9 acres of non-tidal wetlands. This acreage includes non-tidal wetlands which will be created as a direct result from the installation of grade control structures near the upstream impoundment as well as fringe wetlands adjacent to the stream channel within the lower impoundment.

In addition to the proposed restoration activities at the impoundments, TNC will enhance the wooded riparian buffer along sections of Holt's Creek and the Pamunkey River through the planting of additional hardwoods to extend the existing wooded buffers to 100 feet. Although field verification is required, TNC estimates the maximum area requiring additional buffer planting is approximately five acres along approximately 1,400 linear feet of the Pamunkey River and approximately 2,200 linear feet of Holt's Creek. Herbicide spraying and/or mowing may be required in the planting area to control invasive species and increase the survival of the planted species.

YK-6 Mattaponi River Site

The purpose of this project is to conduct a real estate appraisal and acquisition of this approximate 72.50 acre property for a potential stream and non-tidal wetland preservation project. The site is located near the town of Aylett in King William County, and is bordered by the Mattaponi River. The funding for this appraisal was approved by the Corps on August 12, 2005, with subsequent funding on May 2, 2006. The Conservancy is in negotiations with the landowner concerning the potential to purchase the easement.

YK-7 Mattaponi (Gwathmey 3)

The purpose of this project is to expand the project boundary of the YK-2 (Gwathmey) Meadow Farm wetland mitigation project in King William County. The initial funding for this project was approved by the Corps on June 22, 2006. The Conservancy secured a conservation easement on the parcel in 2007 and long-term protection will be achieved in accordance with the conservation easement which will be held and monitored annually by the Conservancy.

This project increases the "footprint" of the Gwathmey project by 10.4 acres including approximately 1.74 acres of the agricultural field that may be restored to wetlands and 2.01 acres to uplands and 6.67 acres of upland preservation. The expanded project boundary eliminates potential problems with adjacent site management.

YK-8 Mattaponi River (Bach 1)

The purpose of this project is to conduct non-tidal wetland and upland buffer preservation and

stream and the associated upland riparian buffer preservation at the Bach property located in Caroline County. The initial funding for this project to complete a real estate appraisal was approved by the Corps on August 11, 2006. A second funding request to complete the acquisition and stewardship activities was approved by the Corps on December 15, 2006. The Conservancy purchased the 175 acre property on December 29, 2006. Long-term protection of the site is accomplished by Conservancy ownership. No additional monitoring is required for this project.

The Conservancy has identified the Mattaponi River, which drains to the Chesapeake Bay, as an important conservation target. As part of the Chesapeake Bay watershed, this project contributes to water quality improvement goals set for the Bay through the preservation of stream buffer and wetlands. In addition, the site contains a known occurrence of Eastern Lampmussel (*Lampsillis radiata*), a state rare mussel species.

The project will preserve an estimated 103 acres of non-tidal wetlands and approximately 50.18 acres of upland buffer. In addition, the project will preserve approximately 2,650 linear feet of a wooded upland buffer (typically 200 feet wide) along the right bank of the Mattaponi River. Approximately 2,100 linear feet of two tributaries and the associated wooded upland buffer (typically 200 feet each bank) will also be preserved. The Conservancy anticipates completing the surface water delineation or assessment in 2008.

YK-9 Mattaponi River Site

The purpose of this project is to conduct stream and the associated upland riparian buffer preservation at a site located in King William County. The funding for this project was approved by the Corps on December 15, 2006. The Conservancy plans to place a conservation easement on a donated 314.72 acres of this property; however, the mitigation area is 182 acres, as certain activities such as agriculture and silviculture will be allowed outside the designated "no-touch" buffers surrounding the aquatic resources. The easement will be held by the Conservancy, and long-term protection of the site is accomplished through the monitoring and enforcement of the easement. No additional monitoring is required for the project.

The Conservancy has identified the Mattaponi River, which drains to the Chesapeake Bay, as an important conservation target. As part of the Chesapeake Bay watershed, this project contributes to water quality improvement goals set for the Bay through the preservation of stream buffer and wetlands. In addition, a state rare mussel, Eastern Lampmussel (*Lampsillis radiata*), a state rare mussel species, has been identified in the vicinity of the project site.

This project will preserve an estimated 11,500 linear feet of the upland wooded riparian buffer along the right bank of the Mattaponi River. The estimated "no-touch" buffer width along this reach ranges from 175 to 1,400 feet. The mitigation area for the project is 182 acres, which includes the "no-touch" buffer. The remaining 132.72 acres may be subject to activities that exclude its appropriateness as compensatory mitigation, but can be viewed as additional protected acreage as they will not be developed.

The Conservancy is currently in negotiations with the landowner to close this easement. A delineation will be completed prior to closing this project.

YK-10 Mattaponi River (Bach 2)

The purpose of this project is to extend the additional protected acreage adjacent to the Mattaponi (Bach) site located in Caroline County. The funding request to complete the acquisition and

stewardship activities was approved by the Corps on August 2007. The Conservancy partnered with VOF and utilized additional grant funds to secure the purchase of this easement. The easement was recorded in September 2007. Annual easement monitoring will be conducted by VOF and the Conservancy. No additional monitoring is required for this project.

The Conservancy has identified the Mattaponi River, which drains to the Chesapeake Bay, as an important conservation target. As part of the Chesapeake Bay watershed, this project contributes to water quality improvement goals set for the Bay through the preservation of stream buffer and wetlands. In addition, the site contains a known occurrence of Eastern Lampmussel (*Lampsillis radiata*), a state rare mussel species.

The Conservancy anticipates closing this project in 2008.